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NATIONAL RESEARCH COUNCIL

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REPORT OF THE NATIONAL ACADEMY OF SCIENCES

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FISCAL YEAR
1942–1943

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1944

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LETTER OF TRANSMITTAL

National Academy of Sciences,
Washington, D. C., March 2, 1944.

The Honorable Henry A. Wallace,
President of the United States Senate.

Sir: I have the honor to transmit to you herewith the report of the president of the National Academy of Sciences for the fiscal year ended June 30, 1943.

Yours respectfully,

Frank B. Jewett, *President.*

ACT OF INCORPORATION

AN ACT To incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard,[1] at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden,[2] Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren,[2] United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Englemann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Giles,[3] United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherfurd, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California; their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

SEC. 2. *And be it further enacted,* That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, bylaws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division into classes, and all other matters needful or usual in such institution, and to report the same to Congress.

SEC. 3. *And be it further enacted,* That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States.

GALUSHA A. GROW,
Speaker of the House of Representatives.
SOLOMON FOOTE,
President of the Senate pro tempore.

Approved, March 3, 1863.
ABRAHAM LINCOLN, *President.*

---

[1] The correct name of this charter member was F. A. P. Barnard.

[2] Declined.

[3] The correct name of this charter member was J. M. Gilliss.

AMENDMENTS

AN ACT To amend the act to incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National Academy of Sciences, approved March third, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said Academy as provided in said act.

Approved, July 14, 1870.

AN ACT To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, and its several supplements be, and the same is hereby, authorized and empowered to receive bequests and donations and hold the same in trust, to be applied by the said Academy in aid of scientific investigations and according to the will of the donors.

Approved, June 20, 1884.

AN ACT To amend the act authorizing the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes, approved June twentieth, eighteen hundred and eighty-four, be, and the same is hereby, amended to read as follows:

"That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, be, and the same is hereby, authorized and empowered to receive by devise, bequest, donation, or otherwise, either real or personal property, and to hold the same absolutely or in trust, and to invest, reinvest, and manage the same in accordance with the provisions of its constitution, and to apply said property and the income arising therefrom to the objects of its creation and according to the instructions of the donors: *Provided, however,* That the Congress may at any time limit the amount of real estate which may be acquired and the length of time the same may be held by said National Academy of Sciences."

SEC. 2. That the right to alter, amend, or repeal this act is hereby expressly reserved.

Approved, May 27, 1914.

ANNUAL REPORT OF THE NATIONAL ACADEMY OF SCIENCES

MEETINGS OF THE NATIONAL ACADEMY

For the duration of the war, no scientific sessions are being held during Academy meetings; both the autumn meeting and the annual meeting are now confined to business sessions for members only, and both meetings are being held in the Academy Building, 2101 Constitution Avenue, Washington, D. C.

Upon the cessation of the war, the Academy will resume having scientific sessions to which the public is invited, and will follow its former practice of holding the autumn meetings in different cities, alternating between the eastern and western sections of the United States. The annual meetings, of course, will continue to be held in the Academy Building, as usual.

AUTUMN MEETING, 1942

The 1942 autumn meeting of the National Academy of Sciences was held on October 26, 1942.

BUSINESS SESSION

Forty-five members responded to roll call, as follows:

Abbot, C. G.
Bogert, Marston Taylor
Briggs, L. J.
Bronk, Detlev W.
Buckley, Oliver E.
Bush, Vannevar
Castle, W. B.
Chamberlin, R. T.
Clark, W. Mansfield
Corner, G. W.
Davenport, C. B.
Dodge, B. O.
Doisy, E. A.
DuBois, E. F.
Fleming, John A.
Fred, E. B.
Gasser, H. S.
Harrison, R. G.
Hudson, C. S.
Hunsaker, J. C.
Hunter, Walter S.
Jeffries, Zay
Jewett, Frank B.
Leith, C. K.
Longwell, Chester R.
MacNider, William deB.
Mendenhall, W. C.
Miles, W. R.
Mitchell, S. A.
Morse, Marston
Murnaghan, F. D.
Opie, Eugene L.
Rabi, I. I.
Richards, A. N.
Shapley, Harlow
Small, Lyndon F.
Stanley, W. M.
Streeter, George L.
Thom, Charles
Tolman, Richard C.
Vaughan, T. Wayland
Veblen, Oswald
Waksman, S. A.
Wilson, E. B.
Wright, F. E.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE ANNUAL MEETING

Members

Stephen Walter Ranson, born August 28, 1880; elected to the Academy in 1940; died August 30, 1942.

Ross Aiken Gortner, born March 20, 1885; elected to the Academy in 1935; died September 30, 1942.

Foreign associates

Sir Joseph Larmor, born July 11, 1857; elected a foreign associate in 1908; died May 19, 1942.

Andrew Russell Forsyth, born June 18, 1858; elected a foreign associate in 1907; died June 2, 1942.

Richard Willstaetter, elected a foreign associate in 1926; died August 2, 1942.

DELEGATES APPOINTED SINCE THE ANNUAL MEETING

To the inaugural ceremony of the Polish Institute of Arts and Sciences in America, New York City, May 15, 1942, Simon Flexner.

To the inauguration of Harry Noble Wright, Ph. D., as president of the City College (of the College of the City of New York), New York City, September 30, 1942, Marston Taylor Bogert.

To the fiftieth anniversary celebration of the founding of the Woman's College of the University of North Carolina, Greensboro, N. C., October 4-5, 1942, William DeB. MacNider.

To the tercentenary celebration of the birth of Sir Isaac Newton, London, England, November 30, 1942, James W. Alexander.

BIOGRAPHICAL MEMOIR ASSIGNED SINCE THE ANNUAL MEETING

Dayton Clarence Miller, assigned to Harvey Fletcher.

BIOGRAPHICAL MEMOIRS READ BY TITLE

William Henry Welch, by Simon Flexner.
William LeRoy Emmet, by W. R. Whitney.
George Ellett Coghill, by C. Judson Herrick.
Heber Doust Curtis, by Robert G. Aitken.
Raymond Pearl, by H. S. Jennings.

REPORTS OF THE TREASURER AND AUDITING COMMITTEE

The annual report of the treasurer covering the fiscal year 1941-42 was presented and upon recommendation by the Council of the Academy was accepted for inclusion in the printed Annual Report of the National Academy of Sciences for that period.

The report of the auditing committee was presented and upon recommendation by the Council of the Academy was accepted for inclusion in the same printed Annual Report.

These reports appeared on pages 69-100 of the Annual Report of the National Academy of Sciences for the fiscal year 1941-42.

HENRY DRAPER FUND

A report from the committee on the Henry Draper fund was presented for consideration:

> The committee on the Henry Draper fund has voted unanimously to recommend to the Academy the award of the Draper Medal for 1942 to Ira Sprague Bowen, professor of physics in the California Institute of Technology, in recognition of his contributions to astronomical physics; more especially his researches on the spectra and chemical composition of the gaseous nebulae. Best known and one of Dr. Bowen's most brilliant accomplishments was his discovery of the nature of the "nebulium" lines, a most difficult problem solved by him after the ablest spectroscopists had struggled with it for three quarters of a century and had failed.
>
> This discovery and the results of his subsequent researches yielding the identification of numerous other forbidden lines in nebular and stellar spectra constitute some of the most important advances in astrophysics within recent years.
>
> J. H. MOORE, *Chairman.*

Report accepted and recommendation approved.

MURRAY FUND

Consideration was given to the following report from the Murray fund:

The committee on the Murray fund begs to recommend to the Council and through the Council to the Academy the award of the Agassiz Medal and premium to Columbus Iselin, II, director of the Woods Hole Oceanographic Institution for the following reasons:

"For his studies of the Gulf Stream system, for his leadership in the development of a general program of the physical oceanography of the North Atlantic, and for his distinguished direction of the activities of the Woods Hole Oceanographic Institution, both in peace and in time of war."

The income of the Murray fund makes it possible to give a money award along with the medal and the committee agrees to recommend that an award of $300 be given at the time when the medal is presented. We recommend that this be done at the next annual meeting of the Academy.

EDWIN G. CONKLIN, *Chairman.*
THOMAS BARBOUR.
R. A. DALY.

Report accepted and recommendations approved.

AMENDMENTS TO CONSTITUTION AND BYLAWS

The constitution and bylaws of the Academy were amended as indicated below. The parts which were deleted by the amendments are crossed through, and the new matter is in italics.

CONSTITUTION, ARTICLE II, SECTION 6

PRESIDENT

SEC. 6. The president of the Academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the Academy, of the Academy Council, and of the executive board of the National Research Council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members *or other persons* especially conversant with the subjects, and report thereon to the Academy at its meeting next ensuing; and, with the Council, shall direct the general business of the Academy.

EXPERTS ON COMMITTEES

~~It shall be competent for the President, in special cases, to call in the aid, upon committees, of experts or men of special attainments not members of the Academy.~~

CONSTITUTION, ARTICLE V, SECTIONS 4 AND 5

GOVERNMENT REQUESTS

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the Council for approval, except those requested by the Government of the United States which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained ~~and to the Academy at its next following stated meeting.~~

~~SEC. 5. The advice of the Academy shall be at all times at the disposition of the Government upon any matter of science or art within its scope.~~

CONSTITUTION, ARTICLE IV, SECTIONS 4 AND 5

SECTIONS

SEC. 4. The Academy shall be divided by the Council into sections representing the principal branches of scientific research. Each section shall elect its own chairman to serve for 3 years. The chairman shall be responsible to the Academy for the work of his section.

ADVISORY COMMITTEE ON MEMBERSHIP

To provide that the Academy shall be more adequately representative of the potential scientific effort of the country and better able to discharge its obligations to Government, the Council of the Academy acting with the chairmen of the sections shall be an advisory committee on membership which shall recommend numbers of new members to the various sections. The numbers thus recommended to a section are to be for three years in advance. The advisory committee on membership may organize temporary nominating groups either by subdividing a present section into two or more groups or by forming new intersectional or extrasectional groups to which numbers of new members may be assigned. Such temporary nominating groups may then nominate new members in accordance with the rules laid down for sections.

NOMINATIONS

Nominations to membership in the Academy shall be made in writing and approved by two-thirds of the members voting in a section on the branch of research in which the person nominated is eminent or by a majority of the Council or by a majority (however distributed) of the members voting in any two sections. The nomination shall be sent to the home secretary by the chairman of the section before January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the Academy.

ELECTION PROCEDURE

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which must be transmitted to the home secretary *at least two weeks* in advance of the annual meeting, and a final ballot, to be taken at the meeting.

PREFERENCE BALLOT

Preference ballot.—From the list of nominees submitted by the home secretary, each member shall select and inscribe on a ballot, to an extent not greater than one-half nor less than one-third the list, those names which he prefers, as these limits shall be interpreted by the home secretary in his discretion, and announced by him, no weight being attached to the order of the names, and ballots not complying with these requirements being discarded. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

After the preference list has been made up in the manner stated, *the president, acting for the Council, may request permission to advance one or more nominees to a higher place on grounds of the general interests of the Academy. If a majority of the members of the Academy present favor such an advance it shall be made.* The chairman of any section having two or more nominees on the list may, when its first nominee is reached, request the permission of the Academy to interchange the positions (on the preference list) of the nominees of his section, without altering in any way the positions of nominees from other sections. If a majority of the members of the Academy present favor permitting a section to make such interchanges of its own nominees, it shall be done before proceeding further with the election.

FINAL BALLOTT

If a nominee receives a majority of the votes of those members voting in the preference ballot he may be declared elected by a two-thirds voice vote. A vote shall be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receives two-thirds of the votes cast and not less than 30 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until ~~15~~ *30* nominees shall have been elected, or until the total membership of the Academy shall have reached ~~350~~ *450*, or until the Academy shall terminate the election by vote as provided below. In voting the final ballot, members shall inscribe on the ballot the name of the nominee with either "*yes*" or "*no*" or "*blank*", and only ballots thus inscribed shall be counted. Members appointed as tellers must vote before counting the ballots.

ELECTION

Not more than ~~15~~ *30* members shall be elected at one annual meeting.

It shall be in order at any point in the course of an election to move that the election be closed. If two-thirds of those present vote in favor of such motion, it shall prevail, and the election shall thereupon terminate.

Before and during elections a discussion of the merits of nominees will be in order.

BYLAW I. *2*

2. A foreign associate of the Academy who becomes a citizen of the United States shall have all the privileges and duties of a member of the Academy unless he shall request otherwise, and shall be included in the list of members in the section of his choice.

BYLAW IV. *3*

NOMINATION BALLOTS

3. The chairman of each section of the Academy shall submit to the members of his section, not later than November 1 of each year, an informal ballot containing in alphabetical order and without indications of rank on ballots of the previous year, the names of all those persons who received not less than two votes in the informal ballot of the preceding year and not less than one-fourth of the votes on the informal ballot in at least one of the preceding 3 years in the case of names on the list for 3 years or have been continued on the list by the home secretary or have been added to the list by him or have been newly proposed for consideration in accordance with the procedure above defined. Each member of the section shall be expected to return his ballot to the chairman within 2 weeks, with his signature and with crosses against the names of those persons whom he is prepared to endorse for nomination. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of ~~not more than three~~ *those* persons whom he judges to be worthy of nomination.

BYLAW IV. *4*

ADVISORY COMMITTEE ON MEMBERSHIP

4. Meetings of the advisory committee on membership shall be held immediately following the election of new members of the Academy, at the annual meeting. The president of the Academy shall be chairman of the advisory committee on membership.

TEMPORARY NOMINATING GROUPS

Members of the Academy who have been asked to serve on temporary nominating groups by the advisory committee on membership shall retain membership in their respective sections and shall be entitled to vote on the informal and formal ballots of their section.

When a temporary nominating group is organized by the committee on membership, the member of the group who is designated as chairman by the advisory committee on membership shall immediately notify all members of the Academy in that group of their assignment by the advisory committee on membership as members of the group, listing all members of the group in this notification, and shall further transmit to all members of the group the specifications as prepared by the advisory committee on membership, of the special branch of science which the group is to canvass, and shall then obtain from the members of the group, before October 1, proposals of names of persons in that special branch of science to be considered in the election of new members by the Academy. Such proposals shall be submitted to the group, by the chairman, not later than November 1 for informal ballot. The informal and formal ballots shall be governed by the same rules as ballots of sections; and the chairman shall report to the home secretary the results of the formal ballot of the group under the same rules as apply to sections.

(NOTE.—The existing bylaw paragraph headed "Preference Ballot" follows this, and will be renumbered "5"; and the next paragraph, formerly numbered 5, will be renumbered "6".)

BYLAW IV. 7

7. Members of the Academy are permitted to choose the section with which they wish to be affiliated, and no one shall be a member of more than one section; but this does not preclude service on a temporary nominating group at the request of the advisory committee on membership.

Adopted.

ANNUAL MEETING, 1943

The National Academy of Sciences held its annual meeting in the Academy Building on April 26, and 27, 1943.

BUSINESS SESSION

One hundred and fourteen members responded to roll call, as follows:

Abbot, C. G.
Adams, Roger
Adkins, Homer
Barbour, Thomas
Birkhoff, G. D.
Blakeslee, A. F.
Bogert, Marston T.
Bowen, I. S.
Bowman, Isaiah
Breit, Gregory
Briggs, L. J.
Bronk, D. W.
Bucker, W. H.
Buckley, O. E.
Bush, Vannevar
Cannon, W. B.
Clark, W. M.
Cleland, R. E.
Coble, A. B.
Coblentz, W. W.
Conant, J. B.
Conklin, E. G.
Corner, G. W.
Cottrell, F. G.
Davenport, C. B.
Day, A. L.
Dodge, B. O.
Doisy, E. A.
DuBois, E. F.
Duggar, B. M.
Dunn, Gano
Durand, W. F.
Eisenhart, L. P.
Emerson, R. A.
Evans, G. C.
Evans, H. M.
Fleming, J. A.
Fletcher, Harvey
Forbes, Alexander
Fred, E. B.
Gasser, H. S.
Gregory, W. K.
Harrison, R. G.
Hastings, A. B.
Hewett, D. F.
Hildebrand, J. H.
Hrdlicka, Ales
Hudson, C. S.
Hunsaker, J. C.
Hunter, W. S.
Ipatieff, Vladimir
Jacobs, M. H.
Jeffries, Zay
Jewett, F. B.
Jones, D. F.
Kasner, Edward
Kidder, A. V.
Kirkwood, J. G.
Knopf, Adolph
Kunkel, L. O.
Lashley, K. S.
Lauritsen, C. C.
Lawrence, E. O.
Lefschetz, Solomon
Leith, C. K.
Leuschner, A. O.
Longwell, C. R.
McClung, C. E.
MacInnes, D. A.
MacNider, W. deB.
Marvel, C. S.
Mead, W. J.
Mendenhall, W. C.
Merrill, E. D.
Merritt, Ernest
Miles, W. R.
Millikan, R. A.
Mitchell, S. A.
Moulton, F. R.
Murnaghan, F. D.
Murphy, J. B.
Opie, E. L.
Pauling, Linus
Pillsbury, W. B.
Reid, H. F.
Richards, A. N.
Riddle, Oscar
Rivers, T. M.
Robbins, W. J.
Rodebush, W. H.
Rous, Peyton
Scott, W. B.
Shaffer, P. A.
Shapley, Harlow
Sherman, H. C.
Sinnott, E. W.
Small, L. F.
Stanley, W. M.
Stone, M. H.
Streeter, G. L.
Swanton, J. R.
Taliaferro, W. H.
Tate, J. T.
Thom. Charles
Vaughan, T. W.
Veblen, Oswald
Waksman, S. A.
Weyl, Hermann
Whitehead, J. B.
Wilson, E. B.
Wislocki, G. B.
Woodworth, R. S.
Wright, F. E.
Yerkes, R. N.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE AUTUMN MEETING

Members

Charles Schuchert, born July 3, 1858; elected to the Academy in 1910; died November 20, 1942.

Franz Boas, born July 9, 1858; elected to the Academy in 1900; died December 21, 1942.

Gary Nathan Calkins, born January 18, 1869; elected to the Academy in 1919; died January 4, 1943.

Leonhard Stejneger, born October 30, 1851; elected to the Academy in 1923; died February 28, 1943.

William Albert Setchell, born April 15, 1864; elected to the Academy in 1919; died April 4, 1943.

Foreign associates

Charles Eugene Schneider, of Paris, France; elected a foreign associate in 1925: died November 17, 1942.

Frank Dawson Adams, of Montreal, Canada; elected a foreign associate in 1920; died December 26, 1942.

David Hilbert, of Gottingen, Germany; elected a foreign associate in 1907; died February 18, 1943.

BIOGRAPHICAL MEMOIRS ASSIGNED SINCE THE AUTUMN MEETING

Clinton Hart Merriam (formerly assigned to Leonhard Stejneger, deceased) reassigned to John C. Merriam.

Ross Aiken Gortner, assigned to S. C. Lind.

Stephen Walter Ranson, assigned to Florence R. Sabin.

Charles Schuchert, assigned to Adolph Knopf.

Franz Boas, assigned to R. H. Lowie.

Gary Nathan Calkins, assigned to A. H. Sturtevant.

Leonhard Stejneger, assigned to Alexander Wetmore.

William Albert Setchell, assigned to D. H. Campbell.

BIOGRAPHICAL MEMOIR READ BY TITLE

Alexander Graham Bell by Harold S. Osborne.

APPOINTMENTS

To represent the Academy on the supervisory board of the American Year Book: Richard E. Shope.

To represent the Academy at the National Conference on Planning for War and Post-war Medical Sciences, held under the auspices of the Carlos Finlay Institute of the Americas, at the Waldorf-Astoria, New York City, March 15, 1943: Frank B. Jewett.

To represent the Academy on the Copernican Quadricentennial National Committee (to celebrate the four-hundredth anniversary of the death of Nicholas Copernicus, under the auspices of the Kosciuszko Foundation, New York City, on May 24, 1943) and on the committee on scholarship in connection with Copernicus citations: Frank B. Jewett.

Tellers to count the preference ballots: E. B. Fred, chairman; W. F. Durand, and T. W. Vaughan.

Auditing committee: W. C. Mendenhall, chairman; A. L. Day, and John R. Swanton.

Nominating committee to present nominations for president, home secretary, and two members of the Council of the Academy: W. F. Durand, chairman; Isaiah Bowman, E. B. Fred, W. S. Hunter, F. R. Lillie, A. N. Richards and E. B. Wilson.

TRUST FUND COMMITTEE APPOINTMENTS

Henry Draper fund.—Joel Stebbins (to succeed V. M. Slipher) as member; term, 5 years ending with the annual meeting in 1948.

J. Lawrence Smith fund.—C. R. Longwell (to succeed N. L. Bowen) as member; term, 5 years ending with the annual meeting in 1948.

Cyrus B. Comstock fund.—A. L. Loomis (to succeed R. S. Mulliken) as member; term, 5 years ending with the annual meeting in 1948.

Marsh fund.—T. S. Painter (to succeed W. W. Coblentz) as member; term, 5 years ending with the annual meeting in 1948.

Murray fund.—G. H. Parker (to succeed E. G. Conklin) as member; term, 3 years, ending with the annual meeting in 1946. R. A. Daly to succeed Mr. Conklin as chairman, for the period ending with the annual meeting in 1945.

Marcellus Hartley fund.—H. E. Ives (to succeed F. R. Lillie) as member, Joseph Slepian (to succeed A. N. Richards) as member; terms, 3 years ending with the annual meeting in 1946.

Mary Clark Thompson fund.—W. H. Bucher (to succeed C. R. Longwell) as member; term, 3 years ending with the annual meeting in 1946. T. W. Vaughan to succeed Mr. Longwell as chairman, for the period ending with the annual meeting in 1944.

John J. Carty fund.—Isaiah Bowman (to succeed W. H. Howell) as member; term, 5 years ending with the annual meeting in 1948.

Joseph Henry fund.—D. W. Bronk (to succeed L. R. Jones) as member; term, 5 years ending with the annual meeting in 1948.

SECTION CHAIRMEN ELECTED BY THE SECTIONS FOR THE 3-YEAR TERM ENDING WITH THE ANNUAL MEETING IN 1946

Section of mathematics.—M. H. Stone (to succeed Marston Morse).

Section of zoology and anatomy.—G. W. Corner (to succeed G. L. Streeter).

TEMPORARY NOMINATING GROUPS APPOINTED BY THE ADVISORY COMMITTEE ON MEMBERSHIP AT ITS MEETING ON OCTOBER 26, 1942

Field of agricultural science.—E. D. Merrill, chairman:

Chemistry: J. H. Hildebrand and W. H. Rodebush.

Geology: Eliot Blackwelder.

Botany: I. W. Bailey, B. M. Duggar, D. R. Hoagland, L. O. Kunkel, E. D. Merrill, W. J. Robbins, E. W. Sinnott, and E. C. Stakman.

Zoology and anatomy: W. H. Taliaferro and S. G. Wright.

Physiology and biochemistry: C. A. Elvehjem, W. C. Rose, and W. M. Stanley.

Pathology and bacteriology: R. J. Dubos, R. E. Shope, and E. E. Tyzzer.

Field of geophysics.—J. A. Fleming, chairman:

Mathematics: Harry Bateman, G. D. Birkhoff, and F. D. Murnaghan.

Astronomy: C. G. Abbot, J. A. Fleming, and Harlow Shapley.

Physics: P. W. Bridgman, A. H. Compton, and Max Mason.

Engineering: L. J. Briggs, Vannevar Bush, J. C. Hunsaker, and T. von Karman.

Chemistry: S. C. Lind.

Geology: Isaiah Bowman, A. L. Day, Adolph Knopf, T. W. Vaughan, and F. E. Wright.

Botany: S. A. Waksman.

Zoology and anatomy: H. B. Bigelow, and F. R. Lillie.

ACADEMY REPRESENTATIVE ON BOARD OF TRUSTEES OF SCIENCE SERVICE

Warren H. Lewis was nominated by the Council of the Academy to succeed himself for a further term of 3 years.

(Other National Academy of Sciences representatives on the Board of Trustees of Science Service: R. A. Millikan, 1944; Harlow Shapley, 1945.)

DUES

The recommendation of the Council of the Academy that dues for membership in the Academy for the year ending with the annual meeting in 1944 be $10, was approved.

TRANSFER TO ROLL OF MEMBERS EMERITI

A request that William George MacCallum, member of the section of pathology and bacteriology of the Academy, be transferred to the roll of members emeriti because of physical inability to attend meetings of the Academy was presented and, upon recommendation by the Council of the Academy, was approved.

REPORT OF THE FOREIGN SECRETARY

The foreign secretary, Mr. W. B. Cannon, presented an oral report which was accepted.

REPORT OF THE HOME SECRETARY

Since the last annual meeting, six additional Biographical Memoirs have been sent to press and are now in proof.

Seven members and six foreign associates have died since the last annual meeting, as follows:

Members

Stephen Walter Ranson, born August 28, 1880; elected to the Academy in 1940; died August 30, 1942.

Ross Aiken Gortner, born March 20, 1885; elected to the Academy in 1935; died September 30, 1942.

Charles Schuchert, born July 3, 1858; elected to the Academy in 1910; died November 20, 1942.

Franz Boas, born July 9, 1858; elected to the Academy in 1900; died December 21, 1942.

Gary Nathan Calkins, born January 18, 1869; elected to the Academy in 1919; died January 4, 1943.

Leonhard Stejneger, born October 30, 1851; elected to the Academy in 1923; died February 28, 1943.

William Albert Setchell, born April 15, 1864; elected to the Academy in 1919; died April 4, 1943.

Foreign associates

Sir Joseph Larmor, of Cambridge, England; elected a foreign associate in 1908; died May 19, 1942.

Andrew Russell Forsyth, of London, England; elected a foreign associate in 1907; died June 2, 1942.

Richard Willstaetter, of Muralto-Locarno, Switzerland; elected a foreign associate in 1926; died August 2, 1942.

Charles Eugene Schneider, of Paris, France; elected a foreign associate in 1925; died November 17, 1942.

Frank Dawson Adams, of Montreal, Canada; elected a foreign associate in 1920; died December 26, 1942.

David Hilbert, of Gottingen, Germany; elected a foreign associate in 1907; died February 18, 1943.

There are now 319 members, 4 members emeriti, and 33 foreign associates.

F. E. Wright, *Home Secretary.*

Report accepted.

REPORTS OF TRUST FUNDS

ALEXANDER DALLAS BACHE FUND

During the past year the board of directors of the Alexander Dallas Bache Fund of the National Academy of Sciences made the following grants:

No. 393, for $300 to Horace S. Uhler, Yale University, for aid in the preparation of tables of natural logarithms.

No. 394, for $500 to T. D. Jones, University of Kansas, for the development of the symphochrome.

No. 395, for $500 to F. F. Nord, Fordham University, for the study of the relations between the size of particles of colloids in general and catalytic activity.

No. 396, for $250 to Arthur Keith, National Academy of Sciences, Washington, D. C., for aid in searching for the Lower Cambrian fossils from the rocks near the south side of the St. Lawrence River.

No. 397, for $500 to Thomas Barbour, Museum of Comparative Zoology, Harvard University, Cambridge, Mass., for aid in developing the Miocene vertebrate fossil area in northwest Florida.

The bursar of the Academy reports $4,730.85 as available for grants as of the date of March 31, 1943.

W. J. V. Osterhout.
Sewall Wright.
Edwin B. Wilson, *Chairman.*

Report accepted.

JAMES CRAIG WATSON FUND

No report was received from the board of trustees of the Watson fund.

HENRY DRAPER FUND

The committee on the Henry Draper fund desires to report that during the year 1942–43 no requests for grants in aid of research from this fund have been requested and that none has been made.

The status of the Draper Fund as of March 31, 1943 was as follows:

Invested capital	$10, 000. 00
Uninvested capital	None
Invested income	None
Uninvested income	839. 26

The presentation of the Henry Draper Medal to Ira Sprague Bowen will be made at the annual meeting of the Academy.

J. H. MOORE, *Chairman.*

Report accepted.

J. LAWRENCE SMITH FUND

As chairman of the J. Lawrence Smith fund, National Academy of Sciences, I beg to report that the committee has not received during the past year any request for grants bearing on investigations of meteoric bodies. We have therefore no recommendations to submit either as regards the award of the medal or as regards grants to the Academy in the annual meeting of April 26 and 27, 1943.

The bursar of the Academy has advised that on March 31, 1943, the condition of the Smith fund was as follows:

Invested income	$3, 938. 45
Uninvested income	4, 941. 95
Invested capital	10, 000. 00
Uninvested capital	None

In view of the large amount of uninvested income, the committee will make an attempt in the new year to find whether there are any distinguished and competent investigators in the field of meteors whose work might be supported, encouraged, and advanced by grants from the fund.

JOHN A. FLEMING, *Chairman.*

Report accepted.

BENJAMIN APTHORP GOULD FUND

The directors of the Benjamin Apthorp Gould fund of the National Academy of Sciences have the honor to report to the Academy as follows:

In the period from April 1, 1942, to March 31, 1943, the following grants were made from the Gould fund:

Grant No. 64: To S. A. Mitchell, the University of Virginia, $500 for aid in the work of the Leander McCormick Observatory on stellar parallaxes and proper motions.

Grant No. 65: $1,200 to Dirk Brouwer, Yale University, for support of the publication of the Astronomical Journal, a grant made in conformity with the wish expressed by the donor, Alice Bache Gould, in the fifth paragraph of the letter accompanying the deed of trust.

The status of the Gould fund as of March 31, 1943, was as follows:

Invested capital	$19, 995. 97
Invested income	9, 747. 65
Total invested	29, 743. 62
Uninvested capital	4. 03
Uninvested income	3, 533. 56
Total not invested	3, 537. 59

Total invested and not invested $33,281.21.

WALTER S. ADAMS,
FRANK SCHLESINGER,
FOREST R. MOULTON, *Chairman.*

Report accepted.

WOLCOTT GIBBS FUND

As chairman of the Gibbs fund of the National Academy, I have to report that no applications for grants were received during the past year.

I enclose two copies of three papers by W. F. Ross covering work assisted by a grant made to him 2 years ago.

GREGORY P. BAXTER, *Chairman.*

Report accepted.

MARSH FUND

I beg to submit the report of the committee on the Marsh fund for the year 1942 and the recommendations for grants during 1943.

I. *Report on grants made in 1942*

1. Dr. Theodore E. White of Harvard University received a grant of $400 for work on the fossils of north Florida. A report of the work, The Lower Miocene Mammal Fauna of Florida, has appeared in the November 1942 Bulletin of the Museum of Comparative Zoology, Harvard College, 92:1, pp. 1–49, and 14 prints.

"The lenticular nature of the laminated clays and the unsorted material in the boulder bar show that the mammal bearing sediments were deposited in the channel of a stream which had arrived at grade. Although the data are not available to date exactly the beginning and end of the time interval represented by this deposit it is evident that it began after the deposition of the Suwannee limestone and was brought to a close by the invasion of the Hawthorne sea. The time interval is undoubtedly equivalent to most of the Tampa limestone and the lower part of the Hawthorne formation. The Carnivora and the Artiodactyla have a decided Lower Miocene aspect, and both groups contain at least one genus which is not found on the Great Plains in deposits later than the Upper John Day. The Equidae and some of the Carnivora are very progressive and have as their closest relatives forms which are found in the Middle and Upper Miocene deposits of the Plains. This disagreement with the stratigraphical data has a plausible explanation in that these forms developed on insular Florida and were unable to escape to the mainland till the end of Oak Grove time."

No fossil plants were found in the deposit in which the mammalian remains occur. Probably the vegetation was similar to that of the Miami-Homestead area today.

Studies on a series of fossil horses (*Parahippus blackbergi-barbouri-leonensis-Merychippus gunteri*) illustrate the development of *Merychippus* from a very primitive species of *Parahippus*. In the end there is a condition in which the difference between these two genera is no greater than that which exists between two species of the same genus. The conclusion is reached that natural selection could have played no part in the development of *Merychippus* and that the causes of speciation are to be found within the animals themselves.

2. Mr. Edward P. Mumford, of Oxford and Stanford Universities, and Prof. G. D. Hale Carpenter, of Oxford University, received a grant of $400 for the continuation of their studies on faunal distribution with special reference to oceanic islands. As a result of researches which have been under way for several years, five papers have been published:

Mumford, E. P.:
1942. Native Rats and the Plague in the Pacific. Am. Scientist, Summer Issue, vol. 30, No. 3, p. 213.
1942. A new Genus, Bedfordia, and other records of Dragon-flies from the Marquesas Islands. Annals and Mag. of Natural Hist., ser. 11, vol. 9, p. 824. (Nov.)
1942. A new species of Ischnura (Order Odonata): A Dragon-fly Nymph . . . from Tahiti. Annals and Mag. of Natural Hist., ser. 11, vol. 9, p. 644. (Aug.)
1942. Records of Corrodentia from the Marquesas Islands. Annals and Mag. Natural Hist., ser. 11, vol. 9, p. 831. (Nov.)
1942. Mosquitoes, Malaria, and the War in the Pacific. Science, August, vol. 96, p. 191.

One copy of each of these five papers will be found on file in the National Academy of Sciences. They show some of the practical accomplishments of these timely investigations. "Three of these from the Annals and Magazine of Natural History are of purely scientific interest, and the other two 'Mosquitoes, Malaria, and the War in the Pacific' in Science for August 28, 1942, and 'Native Rats and the Plague in the Pacific' in the July issue of the American Scientist, 1942, are related to the war effort."

"When the study of distribution was initiated, it was not realized that this basic research would be of importance to a world at war. Much of the results obtained with the aid of the grant from the Marsh fund, however, are now found to have a practical bearing on the present war emergency."

At a later date, Prof. G. D. Hale Carpenter will submit for publication a note on the bearing of the work on the immediate war effort and subsequent post-war reconstruction.

3. The International Hydrographic Bureau was allotted $125 to assist in the preparation of maps of new soundings. This grant was never used.

II. *Applications for grants in 1943*

1. Dr. E. R. Eller of the Carnegie Museum, Pittsburgh, requests a grant of $490 to continue his work with the Scolecodonts of the Black River Group (Ordovician) of Ontario, Quebec, New York, etc., where he has been collecting and publishing on microscopic forms for the last 9 years.

"The proposed problem, the Black River Group, is really a continuation of the work of last year and would complete the Mohawk series. During the summer of 1942 several scattered Black River localities were investigated with good results. By the beginning of this year's field season, about one-third of the laboratory work will be completed so that the utmost results may be accomplished in the field work."

Recommended by the committee.

2. Dr. Lloyd R. Watson, of the College of Liberal Arts, Alfred University, Alfred, N. Y., requests a grant of $500 for work on the development of new and improved types of honeybees. Dr. Watson has developed a technique of controlled mating of honeybees. The project is endorsed by a number of experts in entomology. The committee feels the entire amount requested should not be given but does recommend a grant of $200.

Eliot Blackwelder,
W. W. Coblentz,
W. C. Mendenhall,
G. G. Simpson,[1]
E. B. Fred, *Chairman.*

Report accepted and recommendations approved.

MURRAY FUND

At the close of the annual meeting of 1942 Arthur L. Day's term as a member of the Murray fund committee expired and the president of the Academy appointed in his place Reginald A. Daly of Harvard University; the committee thus continues to have in its membership a representative of the geological sciences.

The unexpended income of the Murray fund at the close of the fiscal year, June 30, 1942, was $1,016.78. No award for that year was proposed, but the committee recommended that the Agassiz Medal and a premium of $300 be awarded to Columbus Iselin II, director of the Woods Hole Oceanographic Institution on the occasion of the 1943 annual meeting of the Academy, for the following reasons:

"For his studies of the Gulf Stream system, for his leadership in the development of a general program of the physical oceanography of the North Atlantic, and for his distinguished direction of the Woods Hole Oceanographic Institution, both in times of peace and war."

This action of the committee was approved at the business meeting of the Academy, October 25, 1942, and the award will be made at the dinner of the Academy on April 26, 1943. This will be the nineteenth award of the Agassiz Medal and the first time it has been given with a monetary premium. After these expenditures have been met there will remain in the Murray fund the capital of $10,000 and uninvested income of $657.84.

Thomas Barbour,
Reginald A. Daly,
Edwin G. Conklin, *Chairman.*

Report accepted.

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[1] Dr. G. G. Simpson is on active duty in the United States Army and did not have an opportunity to vote on these requests.

MARCELLUS HARTLEY FUND

The committee on the Marcellus Hartley fund has voted unanimously to nominate Mr. John D. Rockefeller, Jr., for the award of the Public Welfare Medal at the coming meeting of the Academy.

As a brief statement of the grounds upon which the committee has based its choice, and as a possible citation at the time of the award, your committee suggests the following:

"The Marcellus Hartley medal for eminence in the application of science to the public welfare is awarded to John Davison Rockefeller, Jr., in recognition of his services to mankind made possible by the inheritance of a great fortune and effected by singleness of wise and lofty purpose.

"In the discharge of the tremendous responsibility thus laid upon him he has utilized and notably fostered the biological, social, and archeological sciences to the lasting benefit of the health and welfare of this Nation and of the world."

J. B. WHITEHEAD, *Chairman.*

Report accepted and recommendation approved.

DANIEL GIRAUD ELLIOT FUND

The members of the committee on the Daniel Giraud Elliot fund have the honor to make the following unanimous recommendation for the medal of this fund for 1937:

To George Howard Parker, professor of zoology, emeritus of the faculty of arts and sciences of Harvard College, for his work, "Do Melanophore Nerves Show Antidromic Responses?" (Journal of General Physiology, vol. 20, July 1937).

THOMAS BARBOUR,
A. H. STURTEVANT,
WILLIAM K. GREGORY, *Chairman.*

Report accepted and recommendation approved.

MARY CLARK THOMPSON FUND

The committee on the Mary Clark Thompson fund, consisting of C. R. Longwell, W. J. Mead, and T. Wayland Vaughan, has deliberated by correspondence during the fall and early winter. We have agreed on 2 candidates; and because only 11 awards of the medal have been made since 1919, although the deed of gift stipulates an award annually, the committee recommends that the Academy make 2 awards this year. The candidates presented by the committee are George Gaylord Simpson, of the American Museum of Natural History, New York, and David Meredith Seares Watson, Jodrell professor of zoology and comparative anatomy in University College, London.

Dr. Simpson is recommended because of his outstanding contributions in the field of vertebrate paleontology, beginning with a brilliant study of the Mesozoic mammals. His analytical studies have provided the basis for important stratigraphic correlations. Although he is not yet 41 years old, Dr. Simpson has achieved high distinction as a field collector, as a systematic paleontologist, and as an original thinker on broad problems of evolution.

Dr. Watson also is a distinguished vertebrate paleontologist. His investigations into the origin of mammals have led to notable studies of fishes, amphibia, and reptiles. A zoologist and anatomist, he has given particular attention to the functional significance of the structures in fossil forms. Dr. Watson became well known to many American paleontologists through a series of lectures that he gave in this country in 1937. The high value of his researches has been recognized in England by the bestowal of honors, including the Lyell and Darwin medals. He is in his fifty-seventh year.

If the suggestion is appropriate, the committee wishes to nominate Dr. Simpson as recipient of the award for 1943, and Dr. Watson as the medalist for 1941, the latest year in which no award was made.

CHESTER R. LONGWELL, *Chairman.*

Report accepted and recommendations approved.

JOSEPH HENRY FUND

I. *Reports on previous grants*

80. A. L. Hughes, Washington University, St. Louis, $300 grant, 1938, toward a research assistant for study of electron velocities. One hundred dollars of the grant has been used, and since it will not be possible to continue the work until after the war, the unexpended balance has recently been returned.

86. H. T. Graham, Washington University, St. Louis, $550 grant, 1940, to defray expense of adding two channels to present cathode ray oscillograph for study of conduction of nerve impulses. Apparatus is about 90-percent complete, and this status may continue throughout the war unless a trained assistant can be found to finish it.

88. H. S. Jennings, department of zoology, University of California at Los Angeles, $800 grant, 1942, toward employing an assistant in his investigations of the genetic and cytological relationships in protozoa. Grant has been used as planned. Two papers were published during 1942, and studies are to be continued.

89. Adam G. Böving, Washington, D. C., $800 grant, 1942, for the completion of his studies of the anatomy and taxonomy of the larvae of the beetles of the genus *Phyllophaga*. Dr. Böving has been recalled by the Department of Agriculture to active duty in the Bureau of Entomology for the duration of the war, and he has requested that the grant lapse.

II. *Status of the fund*

The bursar of the Academy reports the invested capital of the fund as $42,163.50, and the uninvested capital available for grants, as of March 4, 1943, $3,686.91. It is recommended that $2,000 of this amount be added to the capital fund.

L. R. Jones,
C. E. McClung,
W. R. Miles,
R. C. Tolman,
J. C. Slater, *Chairman.*

Report accepted.

CHARLES DOOLITTLE WALCOTT FUND

No report was received from the Charles Doolittle Walcott trust fund board.

JOHN J. CARTY FUND

Confirmation was given to the mail vote of the Academy approving the following recommendation from the committee on the John J. Carty fund:

"The committee on the John J. Carty fund has recommended to the Academy the award of the John J. Carty Medal and an Honorarium of $4,000 to Edwin Grant Conklin, 'zoologist, cytologist, and embryologist; philosopher, teacher, and scientist; student of life and of growth from lowliest beginnings to highest consummation.'"

O. E. Buckley, *Chairman.*

Approved and confirmed.

NATIONAL SCIENCE FUND

The National Science Fund, created by the National Academy of Sciences in April 1941, is continuing full-time operation despite war conditions and consequent pressing demands upon its directors and officers. A full-time office is maintained at 515 Madison Avenue, New York City.

In connection with its clearinghouse activities during the past year, National Science Fund has again received a number of requests from scientists for advice on securing support for research projects covering a wide range of interests. These have been carefully investigated, and wherever possible recommendations have been made to assist the applicants in securing necessary financing.

Instances of the assistance which the Fund is giving donors to science include successful negotiations for an anonymous donor desiring to support a specific project on the nitroparaffins and their derivatives at Purdue University over a 2-year period and the handling of a $1,500 fund for the donor; consultation with a layman residing on the west coast seeking advice on making a bequest to medical research to be administered by National Science Fund; and the advice and guidance given Dr. Charles L. Mayer who has since placed $4,000 plus administrative expenses at the disposal of the Fund to be used for a prize of $2,000 to be awarded in 1942 and another prize of $2,000 in 1943 for outstanding contributions to our knowledge of factors affecting the growth of animal cells with particular reference to human cancer.

Selection of the recipient of the Charles L. Mayer award for 1942 from a group of 36 entries has been made by the advisory committee appointed by the National Science Fund and consisting of Dr. Alan Gregg, director for the medical sciences of the Rockefeller Foundation; Dr. George H. Whipple, dean of the school of medicine and dentistry of the University of Rochester and a director of the National Science Fund; Dr. R. R. Williams, chemical director of the Bell Telephone Laboratories; and Mr. Elihu Root, Jr., also a director of the Fund. Presentation of the award will be made at the annual meeting of the board of directors of the National Science Fund this spring.

Following conference and consultation with the donor and experts in the particular field, arrangements have been completed and announcement will be made shortly of a $4,000 prize to be offered for outstanding research in a field of physics. It is the desire of the donor that the prize be used for furthering the scientific work of the recipient.

As another phase of its program to ascertain facts about, and focus attention on, problems relating to scientific research and development, the National Science Fund has continued surveys concerned with—

(1) The investigation of cyclotron operation in this country under present conditions and the supply of artificially radioactive substances available for research purposes.

(2) The investigation of the need for pre- and post-doctoral fellowships in applied mathematics.

Reports on these surveys will be made to the directors of the Fund at their annual meeting.

In connection with its development program during 1942, the National Science Fund has been fortunate in securing extremely satisfactory press notices and news stories concerning its activities and purposes from time to time in the daily press (New York Times, New York Herald Tribune, New York World-Telegram, Scripps-Howard papers, etc.) in scientific publications (Science, Science News Letter, Journal of the American Medical Association, Nature), and in special periodicals such as the American Scholar (Phi Beta Kappa quarterly), Trusts and Estates, and the Trust Bulletin of the American Bankers Association. In the November 1942 issue of Trusts and Estates, an article by Dr. Frank B. Jewett entitled "The Mobilization of Science" brought the National Science Fund to the attention of trust officers and estate attorneys throughout the country. Through such publicity, personal contacts, and by direct mail to scientific societies and organized groups, the work and services of the Fund are steadily becoming more widely known and recognized.

The first 6 months of work under a 2-year fellowship awarded by the Milton fund of Harvard University to a historian of science at the request of the National Science Fund has been completed. It is expected that one result of the fellowship will be the preparation of a manuscript suitable for publication on the relation of fundamental scientific research to recent important applications.

The test program of direct approach to a few carefully selected individuals, small foundations and family trusts has suffered somewhat because of the demands of war-urgent matters upon officers and directors of the Fund and upon the potential donors. It has been possible, however, to carry through a number of approaches, some of which hold real promise for future development of the Fund and informal contacts with a steadily widening circle of possible donors continue.

A gift of $100 for operating expenses was received from the Samuel H. Kress Foundation last summer. In January 1943 as the result of an appeal made by personal letter to a selected group of persons over $600 was contributed toward future operating costs of National Science Fund.

From its inception in 1941 and during the year prior to that time when the committee on a National Science Fund surveyed the field of financial support for fundamental research for the Academy to determine the wisdom of establishing a national science fund, all expenses have been paid from a fund of $25,000, comprising two grants made to the National Academy of Sciences by the Carnegie Corporation of New York. A balance of approximately $2,800 from this $25,000 fund remains.

Expense of administering the Fund for the first 9 months of the fiscal year ending June 30, 1943, has been $3,228, compared with $7,116 for the corresponding period in fiscal 1942. The reduction in cost has been made possible in large part by the fact that the executive secretary has been on leave of absence without pay in Washington on war work, and has given as much of his free time as possible to the activities of the Fund.

The problem of financing the National Science Fund's small expenses over a period of time to make possible the priming of larger gifts for use in critical areas of science and to continue the development of important contacts and projects now under way until sufficient resources are acquired to produce income for the Fund's running expenses, is both serious and challenging. The directors of the National Science Fund believe that it is extremely important to keep in operation this administrative center, already becoming recognized for its ability to perform services for science for which there is a real need yet which no other organization is set up to do. The groundwork has been soundly laid; carefully planned steps are being taken toward major objectives; if given sufficient time for proper growth, there is every indication that the National Science Fund can be, and will be, successful. This means that adequate provision must be made now for assured financing for the Fund for the period of the next 4 to 5 years. At present, we have convincing evidence that results are already beginning to show. Continuance of the Fund's program on a sound and assured basis will enable us to reap the benefits of the hard work done in the past by the officers and directors.

WILLIAM J. ROBBINS,
Chairman, Board of Directors,
National Science Fund.

Report accepted.

REPORT OF THE COMMITTEE ON SCIENTIFIC PROBLEMS OF NATIONAL PARKS

At the annual meeting of the Academy in 1935, the committee on scientific problems of national parks called attention to the fact that its work was in large measure completed, although studies on the geology of Crater Lake National Park were under way and would presumably be continued until a final report could be made by Dr. Howell Williams. Inasmuch as certain expenditures authorized by the committee were still to be covered, it seemed wise to allow the committee to continue until such time as the work might be completed.

Since the transmission of the report of the committee in 1935, Dr. Howell Williams has presented before the Academy in 1940 a careful scientific statement of results of his researches on Crater Lake National Park. Since that time, Dr. Williams has completed his monograph work entitled, "The Geology of Crater Lake National Park," which was published as a monograph by the Carnegie Institution of Washington as publication 540 in 1942. This work constitutes one of the most interesting monographs on volcanology brought to publication in this country, and it will serve a very important purpose in all further volcanological research in this country and of the world. In Dr. Williams' monograph, credit is given to the National Academy of Sciences for its relation to this work. By way of interpretation of the scientific results coming from his study of Crater Lake National Park, Dr. Williams has also published a small book entitled "Crater Lake, the Study of Its Origin," issued through the University of California press. This publication has had wide use and influence and may be looked upon as an important contribution to the advance of understanding of volcanological phenomena. The popular book, "Crater Lake, the Study of Its Origin", has been translated into Spanish and issued through the Pan American Institute of Geography and History under the title, "El Lago Crater," being publication No. 67. This Spanish translation has had wide circulation and will have real importance in bringing knowledge of this research and its results to Spanish-American countries where volcanological phenomena are of much importance.

Although much remains to be done in study of scientific problems of the various national parks of the United States, it is probably best at this time to conclude this particular stage in the work and to suggest that the work of the committee be terminated with this work.

JOHN C. MERRIAM, *Chairman.*

Report accepted and committee discharged.

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REPORT ON THE PROCEEDINGS

It is customary at this time to make a report on the Proceedings of the National Academy of Sciences. With the close of the calendar year 1942 we completed the twenty-eighth volume of the Proceedings. There were 115 contributions making 569 pages. The average length of the contributions was 4.9 pages. The distribution was as follows:

Mathematics	47	Zoology and anatomy	8
Astronomy	10	Genetics	17
Physics	5	Physiology and biochemistry	1
Chemistry	8	Pathology and bacteriology	5
Botany	11	Anthropology and psychology	2
Geology and paleontology	1		

Of the 115 contributions 48 were by members of the Academy and 5 were by National Research Council fellows.

E. B. Wilson,
Managing Editor.

Report accepted.

REPORT ON EXHIBITS

The report presented at the annual meeting last year stated that the entire exhibit series of the National Academy of Sciences and National Research Council had been either returned to the contributor laboratories (with appreciation and with the understanding that they would be returned when the Academy is ready to receive them) or they were stored for the duration to make room for office space for committees doing war work. This situation has not changed during the past year.

The instrument maker, desiring to participate actively in the war effort, was allowed indefinite furlough to join the staff of the department of terrestrial magnetism of the Carnegie Institution of Washington in connection with special war work for the National Defense Research Committee.

Paul Brockett,
Secretary, Committee on Exhibits.

Report accepted.

REPORT ON BUILDINGS AND GROUNDS

When the annual meeting was held last year the building had the appearance of being crowded, but now it seems to be completely filled with offices.

In the report last year mention was made of temporary partitions and screens in some of the exhibit rooms. Now all exhibit rooms have been treated in this way, providing 11 office rooms.

The central hall, or auditorium, has been converted into six office rooms by the erection of temporary partitions. The removable chairs have been stored. The speaker's platform, which is a permanent fixture, and the electrical fittings and laboratory equipment on this platform, have not been disturbed. The space under the galleries of the auditorium is being used as office rooms by the committee on child development (on the west) and by the war metallurgy committee of the Academy and Research Council (on the east). Above, in the galleries, floors have been laid over the steps to make level desk space for a number of office assistants. These galleries are now level with the second floor and are considered part of that floor.

The library has taken on a new appearance. The alcoves have been enclosed with temporary partitions, making six additional office rooms available. These partitioned rooms are not covered over, to allow ventilation. A passageway has been left through the center of the library to provide an entrance to the reading room, which is used for conferences.

The lecture room, the board room, and the reading room have not been changed. They are in demand for meetings of committees in the building having to do with war work.

In the foyer, a small booth has been made for the guards to take care of registration of persons entering and leaving the building.

To take care of increased work of committees of the Research Council, there has been some shifting of office rooms on the second and third floors. The Highway Research Board has moved temporarily to the Pharmaceutical Building, where the Research Council was permitted use of rooms for the duration. Its former second-floor room is now occupied by the division of geology and geography of the Research Council, and its former third-floor rooms are occupied by a committee of the Academy. The Engineering Foundation room (room 222), which was reserved for the Foundation in appreciation of its interest and financial support to the National Research Council in the early days, is being used, for the duration, as the office of the business manager of the Academy and Research Council, with the consent of the Foundation. The large northwest room off the west gallery (room 201) has been divided into three rooms by temporary partitions, to accommodate the division of anthropology and psychology of the Research Council, which moved from the third floor. The entire third floor is used by the division of medical sciences of the Research Council in connection with its war work.

There are now 86 rooms in the building used by committees of the Academy and Research Council and of the national defense research committee of the Office of Scientific Research and Development.

With all these changes, storage space is at a premium. Thus far we have been able to cope with the situation.

The Academy has joined with other buildings in the Constitution Avenue area in looking toward protection of the building and its occupants in the event of air raids. Practice drills have been held to evacuate occupants to the shelter areas in the basement and on the first floor. The whole establishment has been organized so that evacuation can be accomplished in short order. All members of the staff have cooperated.

One of the important features which enhances the beauty of the building is the grounds. Attention has been given to trimming and general cultivation of the plants, sowing grass seed, and spreading of fertilizer. The effect of this treatment shows that enriching the soil in this way is needed.

The Academy-Research Council Building was exempted from real-property taxation by an order of the Commissioners of the District of Columbia at the time the site was acquired. When the list of exempt institutions was revised, however, the Academy among others was removed from the exempt list. Later the Senate and the House Committees on the District of Columbia took the whole situation under consideration, feeling that many of the organizations which had been removed from the list were operating for the enlightenment of the people without profit and should therefore be exempted. This resulted in the passage of a special bill by both Houses of Congress. Through this bill the Academy was returned to the list of organizations exempt from real-property taxes, and the exemption was made to cover the assessment rendered between the time of the removal from the exempt list and the time of the passage of the bill.

Paul Brockett,
Custodian, Buildings and Grounds.

Report accepted.

GOVERNMENT PROJECTS

Reports on scientific advisory work being done by committees of the National Academy of Sciences and National Research Council at the request of the Government are not included in this annual report. Reports on such projects are made directly to the department or agency concerned, and the question of whether or not they shall be published, and their distribution if published, is entirely in the hands of that department or agency. No releases are made by the Academy.

ELECTIONS

The elections at the annual meeting resulted as follows:

President: Frank B. Jewett, reelected for a further term of 4 years, ending June 30, 1947.

Home secretary: F. E. Wright, reelected for a further term of 4 years, ending June 30, 1947.

Two members of the Council of the Academy, terms, 3 years ending June 30, 1946; W. Mansfield Clark, reelected; Walter R. Miles, to succeed Oswald Veblen.

New foreign associates: Alfonso Caso, Instituto Nacional de Antropologia e Historia, Mexico City; Sir Harold Spencer Jones, Royal Observatory, Greenwich, SE. 10, England; Richard Vynne Southwell, Brasenose College, Oxford University, Oxford; Charles Edward Spearman, University of London, London, England; Sir D'Arcy Wentworth Thompson, University of St. Andrews, St. Andrews, Fifeshire, Scotland; Hendrik Johannes van der Bijl, University of Pretoria, Pretoria, South Africa.

New members: Leason Heberling Adams, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C.; Abraham Adrian Albert, University of Chicago, Chicago, Ill.; Jesse Wakefield Beams, University of Virginia, University, Va.; Arthur Francis Buddington, Princeton University, Princeton, N. J.; Leonard Carmichael, Tufts College, Medford, Mass.; William Henry Chandler, University of California, Los Angeles, Calif.; Edwin Joseph Cohn, Harvard Medical School, Boston, Mass.; John Nathaniel Couch, University of North Carolina, Chapel Hill, N. C.; Theodosius Dobzhansky, Columbia University, New York City; Lee Alvin DuBridge, University of Rochester, Rochester, N. Y.; Leslie Clarence Dunn, Columbia University, New York City; Wallace Osgood Fenn, University of Rochester, Rochester, N. Y.; Paul Darwin Foote, Gulf Research & Development Co., Pittsburgh, Pa.; Louis Plack Hammett, Columbia University, New York City; William Vermillon Houston, California Institute of Technology, Pasadena, Calif.: Walter Pearson Kelley, Citrus Experiment Station, Riverside, Calif.; Warfield Theobald Longcope, Johns Hopkins University, Baltimore, Md.; Eli Kennerly Marshall, Jr., Johns Hopkins Medical School, Baltimore, Md.; Leonor Michaelis, Rockefeller Institute for Medical Research, New York City; William Albert Noyes, Jr., University of Rochester, Rochester, N. Y.; Oswald Hope Robertson, University of Chicago, Chicago, Ill.; Carl-Gustaf Arvid Rossby, University of Chicago, Chicago, Ill.; Calvin Perry Stone, Stanford University, Stanford University, Calif.; Charles Vincent Taylor, Stanford University, Stanford University, Calif.; Hubert Bradford Vickery, Connecticut Agricultural Experiment Station, New Haven, Conn.; Vladimir Kosma Zworykin, RCA Manufacturing Co., Camden, N. J.

PRESENTATION OF MEDALS

At the dinner of the Academy held at the Roger Smith Hotel on Tuesday evening, April 27, 1943, the following medals were presented: Henry Draper medal for 1942, to Ira Sprague Bowen; Agassiz medal for 1942 with accompanying honorarium of $300, to Columbus O'Donnell Iselin II; Daniel Giraud Elliot medals with accompanying honoraria of $200 each, for 1935 to Edwin H. Colbert, for 1936 to Robert Cushman Murphy; John J. Carty medal and accompanying award ($4,000) to Edwin Grant Conklin.

The Public Welfare medal and accompanying certificate awarded to John Davison Rockefeller, Jr., at the 1943 annual meeting were presented to Mr. Rockefeller, informally, in his office in Rockefeller Center, New York City, on June 14, 1943. The president and home secretary of the Academy and the chairman of the committee on the Marcellus Hartley fund represented the Academy on that occasion.

REPORT OF THE NATIONAL RESEARCH COUNCIL

For the year July 1, 1942, to June 30, 1943

(Prepared in the office of the chairman of the Council with the assistance of the chairmen of divisions of the Council)

The following report is presented to the National Academy of Sciences by the National Research Council upon activities of the Council during the fiscal year July 1, 1942, to June 30, 1943.

INTRODUCTION

During the year the activities of the National Research Council have continued on an increased scale and with greater diversity. External factors, described in the previous report of the Council, have continued to affect the operation of the several divisions in different ways so that some have been exceedingly active while others have been largely replaced insofar as war work is concerned. The situation in the field of biology and agriculture is, on the whole unchanged, but in spite of the failure of the Government to provide machinery to make funds for emergency research in this field available, and to utilize fully the services of biologists who are anxious to be active in the war effort, work of great utility and importance in this combined field has grown, as described below in the report of the division of biology and agriculture.

The procedures followed in the administration of Government contracts (see report for 1941–42) have worked well and have almost completely removed the difficulties under which the Council was laboring in this respect. This has been greatly facilitated by the creation of the office of business manager, which was filled in August 1942 by the appointment of Mr. George D. Meid.

On the other hand, the Council suffered a severe loss in the death of Dr. Albert L. Barrows, who since 1920 had been successively its assistant secretary and executive secretary. Dr. Barrows' familiarity with the details of the Council's affairs and his extraordinary devotion to its interests rendered his replacement very difficult and all the more so because of the simultaneous resignation of Dr. Robert B. Jacobs, who for 2 years had filled the position of assistant secretary most efficiently.

After Dr. Barrows' death Dr. W. H. Kenerson, of the division of engineering, agreed to serve as acting executive secretary and later was regularly appointed by the executive board to that office.

GENERAL ACTIVITIES

Fellowships.—The number of applicants for fellowships showed a marked decrease owing to the entrance of many young men into the military service. Awards have, however, been made only to such applicants as could meet the normal requirements, and standards have not been lowered.

Six applications for fellowships in the medical sciences were received, all of which were declined. Five of the six applications for fellowships in the field of filtrable viruses were approved; one of the awards was not accepted. No applications were received in the field of orthopedic surgery. From the 12 applications presented for Welch fellowships in internal medicine 2 appointments were made for the 3-year period 1943–46. Three requests for renewal of fellowships were granted, making a total of 9 active fellowships for the year 1943–44.

From 20 applications for fellowships in the natural sciences (including 1 for reappointment) 7 fellowships were awarded for 1943–44, one of which was later declined.

Scientific aids to learning.—This committee, while having undertaken no new projects during the year, continues in existence in order to consider reports of projects not completed, certain of which have been interrupted because of the preoccupation of their directors with war work.

Conference grants.—As in past years, the National Research Council has been able, through appropriations made by the Rockefeller Foundation, to sponsor conferences called for the consideration of important special problems or meetings of committees of the Council to promote research and to meet other special needs. During the year a total of $9,394.82 was spent for these meetings, as follows:

GENERAL

Ethnogeographic Board, for general expense.

Committee on utilization of scientific personnel, Washington, D. C., July 2, 1942.

Committee on applied mathematical statistics, Washington, D. C., January 14, 1943.

GEOLOGY AND GEOGRAPHY

Committee on tectonics, several conferences in connection with final drafting of tectonic map of the United States.

Committee on glacial map of North America, several conferences between the chairman and members of the committee.

BIOLOGY AND AGRICULTURE

Committee on animal nutrition, Chicago, Ill., November 30, 1942.

Conference on marine resources, Washington, D. C., February 15–16, 1943.

Committee on research on food resources of coastal waters, Washington D. C., May 28, 1943.

Committee on crop protection, conference on phytopathology, Columbus, Ohio, February 12–14, 1943.

Committee on wartime modification of curriculum in biology, Cincinnati, Ohio, January 23, 1943.

Conference on war organization of biology, Washington, D. C., August 2, 1942.

Committee on forestry, conferences of chairman, August 2, 1942, to February 3, 1943.

Committee on crop protection, Washington, D. C., and Baltimore, Md., October 12 and 14, 1942.

Subcommittee on increasing milk flow, Chicago, Ill., May 3, 1943.

ANTHROPOLOGY AND PSYCHOLOGY

Emergency committee in psychology, meetings in New York and Washington, July 24–25, September 1–2, November 13–14, 1942, and January 8–9 and March 26–27, 1943.

Committee on problems of neurotic behavior (subcommittee on personality inventory), Washington, D. C., July 25, 1942.

Office of psychological personnel, travel.

Committee on classification of military personnel advisory to the Adjutant General's office, Washington, D. C., September 21, 1942.

Committee on African anthropology, preparation of personnel lists; meeting in Washington, D. C., October 24, 1942.

Committee on anthropology of Oceania, Washington, D. C., December 4, 1942.

Subcommittee on services of women psychologists in the war, travel of chairman.

Committee on child development, Washington, D. C., March 20, 1943.

Committee on African anthropology, Washington, D. C., March 24, 1943.

Intersociety convention of psychologists, New York City, May 29–31, 1943.

Representatives on special occasions.—In response to invitations the National Research Council has been represented during the year as follows at scientific meetings and special academic commemorative occasions:

Inauguration of Harry Noble Wright as president of the College of the City of New York, September 30, 1942: Marston T. Bogert, professor of chemistry, emeritus, Columbia University.

Forty-seventh annual meeting of the American Academy of Political and Social Science, Philadelphia, Pa., April 9–10, 1943: W. H. Kenerson, professor of mechanical engineering, emeritus, Brown University; executive secretary, National Research Council; and C. E. McClung, professor of zoology, emeritus, University of Pennsylvania.

Centenary convocation of Villanova College, Villanova, Pa., May 3, 1943: Jacob R. Schramm, professor of botany and director of the Morris arboretum, University of Pennsylvania.

Advisory committee on scientific publications.—The adivsory committee on scientific publications has continued to function along lines described in the annual report for 1941–42. Reference committees in the various fields, with the number of referees, are as follows: Aeronautics, 2; applied mechanics, 7; mathematics, 1; medicine, 10; metallurgy, 1; physics and chemistry, 9; synthetic rubber, 1. Editors of 237 journals covering their respective fields were notified of the service to be rendered by the referees, and cooperation has been general.

One of the chief activities of the committee has been in connection with actions taken by the Technical Data License Division of the Bureau of Economic Warfare, restricting the export of certain journals or deleting articles from journals which are intended for export. The committee has taken the position that once an article is published in this country it becomes virtually available to the enemy and restriction of export is ineffective. Recently responsibility for decisions concerning export as well as publication in this country has been turned over to the Office of Censorship. Shortly after this transfer was made the chairman of the committee arranged a conference with the director of the Office of Censorship, with the result that the director agreed to accept as final the judgment of the Council's referees concerning the exportability of any scientific article which might be questioned under the Code of Wartime Practices A procedure of interchange between the referees, the editors of scientific journals, and the Office of Censorship was worked out, and the editors were invited to avail themselves of the services of the committee in the examination of doubtful articles. By this procedure publication of unrestricted material is expedited and a smoothly working relationship is established between the editors and the Office of Censorship.

Office of scientific personnel.—The office of scientific personnel, established in May 1941, continued its work under contract with the Office of Scientific Research and Development. On September 15, 1942, when Dr. Joseph C. Morris was forced to return to his duties at

Tulane University, Dean Homer L. Dodge, of the University of Oklahoma, succeeded him as director.

As its primary function the office was successful in finding a large number of men competent in critical fields for employment by war agencies, in spite of the extreme manpower shortage in such fields.

Personnel assistance has been rendered to a large number of agencies. First attention was given to the needs of the Office of Scientific Research and Development, especially to the divisions of the National Defense Research Committee and the directors of their projects. Complete lists of available men were furnished and vigorous efforts were continually made to fill specific vacancies. Special assistance was also given to many departments of the armed services, including in the War Department, the Ballistics Research Laboratory at Aberdeen, the Office of Army Ordnance, the Officer Procurement Service, the Operations Analysis Division, and the Pine Bluff Arsenal; and in the Navy Department, the Bureau of Naval Personnel, the Research Division of the Bureau of Ships, the David Taylor Model Basin, the Naval Aircraft Factory at Philadelphia, the Naval Proving Ground at Dahlgren, and the Office of Inspector of Naval Material at New York.

Other Government agencies assisted include the Immigration and Naturalization Service, the Joint Meteorological Recruiting Board, the Langley Memorial Aeronautical Laboratory, the National Bureau of Standards, the Division of Cultural Relations of the Department of State, the Tennessee Valley Authority, the United States Office of Education, and the War Manpower Commission.

The office has also helped meet urgent personnel needs of many industries engaged in vitally important war research and of a large number of educational institutions charged with large war-training programs in critical technical fields. The number of companies and institutions so assisted is too great to be listed here.

During the period reviewed by this report emphasis was perforce transferred from the above activities, designed to expand the research personnel engaged in the national war effort, to other activities intended to conserve such personnel in positions of maximum effectiveness. The greatest threat was the possibility of unwise drafting of men of military age as manpower margins became narrow and as political pressure to place dependency ahead of occupational considerations increased. The office, through the interest of Dr. E. C. Elliott and Gen. Lewis B. Hershey, was primarily instrumental in the establishment of the National Committee on Physicists and Mathematicians as set forth in Activity and Occupation Bulletin No. 35 of the Selective Service System. This is the most effective procedure that has been devised for placing adequate information and advice before local boards. Committees have also been provided for chemistry and engineering.

Prior to establishment of this procedure the office assisted employers and officials of the Selective Service System in correcting erroneous decisions, in perfecting procedures, and in many other ways. This work and the establishment of the national committee procedure have focused attention on the importance of the research worker in the war.

The office has assisted the national roster and other agencies both in and out of the Government to gather and evaluate statistics on the supply of and need for men in certain critical fields. These data have, by their mere availability, materially affected Government manpower policies and regulations in a way favorable to the war effort. They have also, together with direct urging by the office, influenced universities and colleges to supplement manpower in critical fields by recruiting and training emergency teachers from unpressed fields. In physics and mathematics alone the numbers involved amount to many hundreds.

By virtue of the office's close contacts with universities and colleges it has been able to arrange authoritative assistance to the Army and Navy in the preparation of their advanced training programs. This has included construction of curricula and outlining of course material in certain critical subjects. Subsequently many problems of institutions suddenly assimilating large units for training have been given attention. The office's contribution to these programs has been designed to increase their efficiency, thereby saving teaching manpower and helping to turn out men capable of operating and maintaining technical instrumentalities of warfare. One action of the office resulted in the establishment of cooperation between the War Production Board and several instrument manufacturers in expediting the production of urgently needed demonstration and laboratory equipment. The office continues to advise the War and Navy Departments regarding curricula, course contents, and the selection of institutions for special training programs.

The office has freely turned its hand to problems of scientific and technical personnel in connection with the war effort regardless of their nature, their point of origin, or the fields of knowledge involved. Its flexibility in this respect and its capacity to give individual attention are not equaled elsewhere in the whole war program. It is expected that these qualifications of the office will be increasingly important.

Cooperation with the National Bureau of Standards.—During the year the National Research Council has continued to serve the National Bureau of Standards in the administration of funds which have been contributed to the Bureau by industry and other nongovernmental agencies for the support of investigations conducted at the Bureau. Projects supported in this way during the past year are as follows: Acoustic properties of building materials, thermal properties of liquids, fire resistance of materials, thermal investigations, ignition research, the construction of high precision standards, and investigations on stainless steel sheets. The total amount expended this year by the Research Council on these projects was $6,716.44.

Bibliographic service to Central and South America.—In cooperation with the library of the United States Department of Agriculture and under the sponsorship of the Coordinator of Inter-American Affairs, a microfilm service is now being offered to the republics of Central and South America. Microfilm copies of any scientific article available in Washington will be furnished without charge to scientific workers in the other American republics, and in addition it is proposed to distribute a substantial number of hand readers for use with the microfilm where other readers are not available. The demands for this service are increasing as its availability becomes known.

Committee on applied mathematical statistics.—The committee on applied mathematical statistics was organized late in 1942 in order that the Council might be prepared to furnish statistical advice and information upon problems concerned with personnel, organization, research, and production. The services which it will render include consultation, assistance in the organization and direction of special research projects, and the preparation of necessary manuals on statistical techniques and their application. Subcommittees have been appointed in the following fields; biology, chemistry, economics, engineering, mathematical statistics, medicine, physics, and psychology. Upon request the Secretary of War, the Secretary of the Navy, the Chairman of the War Production Board, and the Administrator of the Office of Price Administration have appointed liaison officers from their respective groups.

Inter-American engineering cooperation.—At the request of the joint committee on Inter-American engineering cooperation, made up of members of five of the national engineering societies, and under the sponsorship of the Inter-American Development Commission, steps are being taken to bring about a wider exchange of technical literature between the engineers of the Western Hemisphere.

JOINT ACTIVITIES

Ethnogeographic Board.—The Ethnogeographic Board was established in June 1942, at a time when the needs of the present war called for the immediate canalization of every type of scientific knowledge into the service of our fighting forces suddenly engaged on a world-wide front. As a part of their effort to assist in this task the American Council of Learned Societies, the Social Science Research Council, the National Research Council, and the Smithsonian Institution established the Ethnogeographic Board in Washington to act as a clearing house between the academic, scientific, and humanistic disciplines with which it was concerned and the organized governmental war effort. At the same time the sponsoring institutions visualized this new instrument as perhaps having equal potential value in organizing scientific materials concerning those complex human and geographic adjustments that will be essential in the establishment of any just and workable peace.

Grants of $20,000 each from the Carnegie Corporation and the Rockefeller Foundation were made available for the use of the board. The types of service rendered have been almost as varied as are the exotic social and environmental regions which are occupied or are in process of occupation by our fighting forces.

Upon request of Army and Navy officials some 25 confidential reports, including charts and photographs, relating to various strategic areas have been prepared and submitted. These include geologic, medical, socio-economic, and other data. They were written by scientists whose experience best fitted them to provide the desired information. In addition the board has furnished information concerning facts or individuals to fill immediate needs. Confidential materials made available through the board include mimeographed reports, regional bibliographies, foreign publications, rare maps and charts, gazetteers, data on tropical diseases, etc. These were secured through nongovernmental sources and were made available to the armed forces through the military liaison officers assigned.

The Army and Navy report that most satisfactory results were derived from the use of photographs and other data dealing with highly strategic areas furnished by a selected list of scholars who had recently been in such areas. Some 4,000 copies of regional personnel lists and mimeographed strategic reports have been distributed through the agency of the board. The Washington regional specialist file, now including 8,500 entries for all continental and island areas, has been widely used.

The 12 round-table dinner conferences held by the board and 30 in which it has participated have considered problems ranging from colonial policy to the transmission of trematode diseases. These conferences drew together the best authorities on such subjects irrespective of institution or agency. None of the activities of the board have duplicated those of any Government-supported agency, and each activity has been aimed at integrating the needs of the Government with the ethnogeographic resources of the country at large.

Joint committee on Latin-American studies.—During the year the joint committee has held four formal meetings, and each of its subcommittees, on research, publications, and personnel, has met once. The committee has likewise sponsored special conferences on the Handbook of Latin American Studies, and on the project for a study of archives in Latin America.

Two committee members resigned, Dr. W. Rex Crawford, to become cultural attaché in Rio de Janeiro, and Dr. George C. Vaillant, for a similar assignment in Lima. Dr. Robert A. Lambert, of the Rockefeller Foundation, and Dr. René d'Harnoncourt, of the Indian Arts and Crafts Board, United States Department of the Interior, were appointed to the committee.

Two issues of the committee's publication, Notes on Latin American Studies, appeared in 1943. Likewise, volume 7 of the Handbook of Latin American Studies was published and distributed. In the field of publication the committee put into effect a simple plan of exchange of journals with Latin America.

The committee considered 26 new projects during the year and continued to advise on many initiated the year before. The new projects were presented to the committee by various governmental agencies, councils, institutions, and individuals. At its last meeting of the year the committee felt that in the future it would be possible to devote its major efforts to planning and promoting Latin-American studies and forego its advisory functions.

AMERICAN GEOPHYSICAL UNION

The twenty-fourth annual meeting of the American Geophysical Union was held in the Hall of Government of George Washington University, Washington, D. C., on April 23 and 24, 1943. The program for the general sessions of the union and its 8 sections included 107 scientific papers and progress reports. These communications indicated the great diversity of the several geophysical fields and the activity and progress in each. The total attendance of members and guests, despite the urgent demands upon all because of the war, was in excess of that registered, namely 475.

Nine resolutions were adopted. These related to (1) precise surveys and maps, (2) essential geophysical observations for the duration of the war, (3) implementation of meteorology for war purposes, (4) establishment of more stations in oceanic areas and Antarctica in the interest of daily and long-range forecastings, (5) naval time-signal services, (6) adequate post-war program of seismological investigations, (7) practical post-war program in all branches of geophysics, (8) ways and means of providing employment for geophysicists released from the war effort during the period of transition from war to peace, and (9) thanks to George Washington University for facilities extended for the meeting.

The fifth award of the William Bowie medal to Oscar Edward Meinzer was made at the general assembly on April 24. Brief memorials on three of the members who had died in the year since the last meeting were read.

J. A. Fleming was reelected general secretary of the union for the years 1943–46; J. A. Duerksen was elected secretary of the section of geodesy for the same period; and Ernst Cloos, L. L. Nettleton, and M. K. Hubbert were elected president, vice president, and secretary, respectively, of the section of tectonophysics for 1943–46.

During the period July 1, 1942, to June 30, 1943, but one regional meeting was held, namely, the joint meeting of the section of hydrology with the western snow conference at Corvallis, Oreg., on June 16, 1943. This was the fifteenth regional meeting so far held under the auspices of the union. Thirteen papers were presented and discussed at length. Because of the limitations of transportation due to the war emergency two other regional meetings that had been proposed were postponed.

The transactions of 1942 (parts I and II, with a total of 741 pages) for the regional meetings at Dallas in December 1941, and Pasadena in January 1942, and for the twenty-third annual meeting at Washington, D. C., on April 3 and 4, 1942, were published and distributed in August and November 1942.

The continuation of the annual Bibliography of Hydrology, United States of America, was postponed in view of the lack of time for preparation of the manuscript. It is expected that the series will be continued at the earliest possible time and that the next volume will include the years 1941, 1942, and 1943.

The total membership of the union on June 30, 1943, was over 2,000, thus showing a gain of over 400 since June 30, 1942.

Despite interference during the year because of the war, it has been possible, with our colleagues in the United Nations, to preserve a considerable part of the functioning of the International Union of Geodesy and Geophysics and thus insure its continuance and the certainty of taking up its important work promptly upon the termination of the war. The contribution of dues from the United States to the International Union for the calendar year 1941 has been received making the balance available at the close of the fiscal year $10,352.92. So far as the limitations of mailing facilities permitted, copies of the transactions of the union have been forwarded without charge to our colleagues abroad. Sufficient copies of the transactions have been kept in stock so that they may be forwarded without charge, as heretofore, to persons and organizations interested in countries to which mailing facilities are not now available.

The American Geophysical Union has made every endeavor in the past year to increase the coordination and collaboration of interests, especially with the geophysicists of the Western Hemisphere, and to maintain a considerable part of the continuity of the functions of the International Union of Geodesy and Geophysics, as above stated, thus protecting for the future those international relations so essential to geophysical research.

LIBRARY

During the fall and winter months the library staff was engaged in assisting the committee on war use of research facilities in a survey of the available research facilities of educational institutions and industrial laboratories of this country. The information obtained was compiled by a number of persons, including the library staff, and was issued in mimeographed form as Available Research Facilities. There are two parts with supplements: Part I, Universities and Colleges (issued October 8, 1942); Supplement to Part I (December 21, 1942); Part II, Industrial Laboratories (November 1, 1942), Supplement to Part II (December 21, 1942). An index to the equipment listed in Part I and Supplement to Part I, Universities and Colleges, appeared in February 1943. Distribution of the reports was restricted to the armed forces and war agencies as confidential documents. The library handled this distribution under the direction of the committee until March 1943, when the remaining copies of the reports were turned over to the War Production Board.

With the increased number of publications appearing in the Council's series a need was felt for a central office through which estimates might be obtained and contacts maintained with the printer. The library was designated by the publications committee to act in this capacity. Bibliographic aid was made available and other assistance given, as requested by the divisions or committees of the Council.

Ninety-one new books were purchased during the year, and a number of periodicals added to the list of those regularly received and circulated. Requests for more than 200 books were made to other libraries in Washington for use of Council personnel.

PUBLICATIONS

The publications of the Research Council during the year have been as follows:

BULLETINS

Data on Chemicals for Ceramic Use. Based on the report of the committee on chemical data for ceramists. Baltimore: Lord Baltimore Press, Bulletin No. 107, June 1943. 94 pages ($2.50).

REPRINT AND CIRCULAR SERIES

The Nation's Protein Supply. Report of the Food and Nutrition Board Prepared by the committee on milk, meat, and legumes. Reprint and Circular Series No. 114. August 1942. 10 pages.

Recommended Dietary Allowances. Food and Nutrition Board. Reprint and Circular Series No. 115. January 1943. 6 pages.

The Effects of Storage of Grains on their Nutritive Value. Seventh report of the committee on animal nutrition. Reprint and Circular Series No. 116. March 1943. 14 pages (25 cents).

Is Animal Protein an Essential Constituent of Swine and Poultry Rations? Ninth report of the committee on animal nutrition. Reprint and Circular Series No. 117. May 1943. 20 pages.

SPECIAL PUBLICATIONS

Ore Deposits as Related to Structural Features. Princeton: Princeton University Press. October 1942. 280 pages ($3).

Heat Transmission. Second edition. New York: McGraw-Hill Book Co. July 1942. 459 pages ($4.50).

A Bibliography of Aviation Medicine. Prepared for the committee on aviation medicine, division of medical sciences. Springfield: Charles C. Thomas. 1942. 237 pages ($4).

Manual of Dermatology. Issued under the auspices of the committee on medicine, division of medical sciences. Philadelphia: W. B. Saunders Co., 1942. 421 pages ($2).

Military Surgical Manuals. Prepared for the committee on surgery, division of medical sciences. Philadelphia: W. B. Saunders Co.:

No. 2. Ophthalmology and Otolaryngology, 1942. 331 pages ($4).
No. 3. Abdominal and Genito-urinary Injuries. 1942. 243 pages ($3).
No. 4. Orthopedic Subjects. 1942. 306 pages ($3).
No. 5. Burns, Shock, Wound Healing, and Vascular Injuries. 1943. 272 pages ($2.50).
No. 6. Neurosurgery and Thoracic Surgery. 1943. 310 pages ($2.50).

The Sex Cycle in Women. The relation between ovarian function and psychodynamic processes. Published under the sponsorship of the Committee on Problems of Neurotic Behavior, 1942. 307 pages ($3.50).

PUBLICATIONS OF THE HIGHWAY RESEARCH BOARD

Highway Research Abstracts. Nos. 92–101, July 1942 and June 1943. Mimeographed.

Proceedings of the twenty-first annual meeting, 1941. Issued August 1942.

Wartime Road Problems. An occasional series of leaflets. Nos. 1–5, July 1942 to February 1943.

PUBLICATIONS OF THE AMERICAN GEOPHYSICAL UNION

Transactions of the American Geophysical Union. Part I, Report and Papers, Joint Regional Meetings, Section of Hydrology. (A) Dallas, Tex., December 30, 1941; (B) Pasadena, Calif., January 16–17, 1942. Published August 1942. Part II. Twenty-third Annual Meeting, April 3 and 4, 1942, Washington, D. C. Published November 1942.

PERIODICALS

Mathematical Tables and Aids to Computation. A quarterly journal edited on behalf of the committee on mathematical tables and aids to computation, division of physical sciences. Subscription price $3 a year, payable to the division, volume 1, No. 1, January 1943.

MISCELLANEOUS PUBLICATIONS

Organization and Members, 1942–43. December 1942. 76 pages. Planographed.

Annual Report, National Research Council, 1941–42. 104 pages. Separate reprint from the Annual Report of the National Academy of Sciences, 1941–42.

RECEIPTS FROM SALES

Receipts from the sale of publications issued by the Research Council in the Bulletin Series and in the Reprint and Circular Series from June 10, 1942, to June 9, 1943, are as follows:

Bulletin 103: Bibliography of Orthogonal Polynomials	$31. 63
Bulletin 104: Industrial Research Laboratories of the United States	769. 30
Bulletin 105: Guide to Tables in the Theory of Numbers	69. 50
Bulletin 106: Handbook of Scientific and Technical Societies and Institutions of the United States and Canada	3, 117. 60
Physics publications	574. 93
Animal nutrition publications	123. 80
All other general publications of the Research Council	146. 84
Total	4, 833. 60

SUMMARY OF FINANCIAL OPERATIONS

General.—The total expenditures of the National Research Council during the fiscal year ended June 30, 1943, for current purposes amounted to $1,272,054.09. This amount is exclusive of purchases of securities, transfers of funds within the Council's accounts, repayments of advances to the National Academy of Sciences, and refunds which were in the nature of expenditure reductions. The total net expenditures for the year under review were approximately 17 percent greater than in the previous year.

An analysis of the total current expenditures by the major types of activities supported provides a measure for interpretation and an indication of the magnitude of operations in the various categories. The expenditures of the Research Council may be classified for this purpose as follows: (1) Administrative and general; (2) specific projects, including those undertaken for and supported by Government agencies, and those whose financial support is provided by nongovernmental agencies; (3) fellowships administered by boards of the Research Council and supported by private philanthropy; and (4) agency funds which are handled by the Council as the fiscal agent of the various controlling bodies.

The report of the treasurer (p. 83) contains detailed statements on receipts and disbursements of the National Research Council.

Classification of expenditures by purposes

Purpose	1941–42		1942–43	
	Amount	Percent	Amount	Percent
Administration and general	$132, 915. 07	12. 3	$137, 382. 89	10. 8
Specific projects:				
Government	568, 813. 70	52. 4	839, 348. 30	66. 0
Non-Government	260, 421. 78	23. 9	211, 290. 32	16. 6
Fellowships	95, 293. 93	8. 8	63, 626. 69	5. 0
Agency funds	27, 686. 96	2. 6	20, 405. 88	1. 6
Total	1, 085, 131. 44	100. 0	1, 272, 054. 08	100. 0

Administrative and general costs.—Funds from which the Research Council's administrative and overhead costs are paid are provided to a certain extent from income on endowment funds. Other sources of financial support during 1942–43 included allotments of portions of grants by the Rockefeller Foundation and the Carnegie Corporation. As generous and timely as those contributions from private philanthropy have been, the endowment-fund income and the private grants for administrative purposes have not been adequate to cover the administrative and general costs of the Council during the past several years. The following factors have accounted for this situation: (1) The upward trend of salaries and prices in general, which has increased the costs of normal operations, and (2) the need for a larger administrative and clerical staff to service the greatly increased volume of project work resulting from requests of the Government. During the year under review the Academy was able to charge to the Government that portion of the Research Council's administrative and overhead expenses which was attributable to research projects undertaken for the Government. Only those costs which by their nature could not be charged to individual specific projects were included in the general charge to the Government. Thus for the first time in recent experience the Academy was in position to recover its total actual costs of conducting projects for and rendering services to agencies of the Government. Thus, also, the Research Council was able to balance its administrative budget without recourse to the use of large portions of emergency funds which were intended principally for other than administrative purposes. It is hoped that the philosophy underlying the present formula by which the Government bears its fair and equitable share of the administrative and overhead costs of the Research Council in connection with projects carried out for the Government will become a permanent feature of the Academy's relationship with the Government.

Government projects.—The data in the above table indicate the extent to which the attention and energies of the Research Council have been directed to work for agencies and departments of the Government during the year under review. Approximately two-thirds of the total net expenditures of the Council for current purposes were on account of Government projects. This amount constituted 80 percent of the total expenditures for project work during the year, exclusive of expenditures for fellowships. At the close of the fiscal year 1942-43 the trend was toward even greater concentration of effort on projects undertaken for the Government. The nature of these projects and their relation to the war effort and to rehabilitation problems are contained in the reports of the division chairmen elsewhere in this report.

Non-Government projects.—During the fiscal year under review the expenditures for specific projects supported by private philanthropy were less than in the previous year by approximately 7 percent. This reduction reflects the greater concentration of the Council's attention to wartime studies and investigations conducted for the Government. The largest individual projects privately supported were in the field of medicine—research in problems of sex and research in endocrinology. In the general field of biology and agriculture the privately supported projects increased in number and in volume of expenditures. The expansion of activities in this vitally important area was limited only by lack of financial support.

Fellowships.—Expenditures during 1942-43 on account of fellowships administered by the Research Council were as follows:

In the medical sciences, including those relating to the filtrable viruses and orthopedic surgery	$23, 187. 53
In the natural sciences	39, 755. 83
Special fellowship on the application of the electron microscope to biological research	683. 33
Total	63, 626. 69

Agency funds.—In the fiscal year under review the Research Council disbursed funds as fiscal agent as follows:

Washington Biophysical Institute	$904. 15
Society for Research in Child Development	3, 223. 23
Annual Tables of Constants and Numerical Data	9, 562. 06
National Bureau of Standards	6, 716. 44
Total	20, 405. 88

The Research Council has no responsibility for development and conduct of the technical programs of the agencies indicated. As fiscal agent the Council undertakes only to receive and disburse the funds in accordance with the wishes of the controlling bodies.

OFFICERS OF THE NATIONAL RESEARCH COUNCIL, 1943-44

The officers, members, and committees of the Research Council for the current year, 1942–43, are given in an appendix to this report (pp. 134–165).

The officers of the Research Council for the ensuing year, July 1, 1943, to June 30, 1944, are as follows:

GENERAL OFFICERS

Chairman: Ross G. Harrison, Sterling professor of biology and director of the Osborn Zoological Laboratory, emeritus, Yale University, New Haven, Conn.

Treasurer: Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the department of aeronautical engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary: William H. Kenerson, professor of mechanical engineering, emeritus, Brown University; National Research Council, 2101 Constitution Avenue, Washington, D. C.

Business manager: George D. Meid, National Research Council.

Bursar: J. H. J. Yule, National Research Council.

Chief clerk: C. L. Wade, National Research Council.

OFFICERS OF DIVISIONS

Foreign relations: Chairman, W. B. Cannon, George Higginson professor of physiology, emeritus, Harvard Medical School; 20 Prescott Street, Cambridge, Mass.; vice chairman, Harlow Shapley, professor of astronony and director of the Harvard College Observatory, Harvard University, Cambridge, Mass.; secretary, William H. Kenerson.

Physical sciences: Chairman, Luther P. Eisenhart, professor of mathematics and dean of the graduate school, Princeton University, Princeton, N. J.; vice chairman, Henry A. Barton, director, American Institute of Physics, 175 Fifth Avenue, New York, N. Y.

Engineering and industrial research: Chairman, W. F. Durand, professor of mechanical engineering, emeritus, Stanford University, Stanford University, Calif.; vice chairman, Howard A. Poillon, president, Research Corporation, 405 Lexington Avenue, New York, N. Y.; executive secretary, W. H. Kenerson.

Chemistry and chemical technology: Chairman, W. Mansfield Clark, professor of physiological chemistry, school of medicine, Johns Hopkins University, Baltimore, Md.; vice chairman, Harris M. Chadwell, head of the department of chemistry and chemical engineering, Tufts College, Medford, Mass.

Geology and geography: Chairman, William W. Rubey, principal geologist, United States Geological Survey, Washington, D. C.; vice chairman: Otto E. Guthe, principal administrative assistant, Office of the Geographer, Department of State, Washington, D. C.

Medical sciences: Chairman, Lewis H. Weed, professor of anatomy and director of the school of medicine, Johns Hopkins University, Baltimore, Md.; first vice chairman: Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York, N. Y.; second vice chairman: John F. Fulton, Sterling professor of physiology, school of medicine, Yale University, New Haven, Conn.

Biology and agriculture: Chairman, Robert F. Griggs, executive officer, department of botany, and chairman, division of natural sciences, George Washington University, Washington, D. C.; vice chairman, L. A. Maynard, director, school of nutrition, and professor of animal nutrition, Cornell University, Ithaca, N. Y.

Anthropology and psychology: Chairman, Leonard Carmichael, president, Tufts College, Medford, Mass.; vice chairman, Ralph Linton, professor of anthropology, Columbia University, New York, N. Y.

DIVISION OF FOREIGN RELATIONS

W. B. Cannon, chairman; Harlow Shapley, vice chairman

International cooperation in scientific endeavor has been during the year 1942–43 much limited by the war. In 1813, when France and England were fighting each other, Sir Humphrey Davy visited Paris, was awarded a gold medal by the Académie des Sciences, and elected a corresponding member. Such amenities have long since vanished.

In a conference held on August 7, 1942, between A. C. Egerton, one of the secretaries of the Royal Society of London, and the chairman of the division, it was agreed that after the war opportune cooperative undertakings with learned societies of previously hostile nations might be a better way of restoring mutual friendship and respect than an attempt now, on our part alone, to fix a definite policy for collaboration.

Such activities as have been carried on by the division may be classified into three categories: Activities of (1) divisions of the Council, (2) international organizations, and (3) individual members of the division of foreign relations.

Reports from divisions.—The division of geology and geography has been cooperating with the Geological Society of America in preparing a geologic map of South America and also with Latin-American geographers in translating into Spanish textbooks on the methods of map making.

The division of biology and agriculture has seen the realization of a plan which it has long advocated, the establishment of an Inter-American agricultural center, now supported by the Coordinator of Inter-American Affairs. An Inter-American conference on agriculture, held in Mexico City in July 1942, may result, it is hoped, in greater cooperation between agriculturists in the American republics.

A project, referred to elsewhere, has been started to provide copies in microfilm of scientific literature available in this country to scientists in the other American republics.

Reports from international organizations.—The functions of the International Union of Geodesy and Geophysics have been to a considerable degree preserved by activities of the officers of the union in England and the United States. Especially has this been true of official representatives of the Associations of Seismology and of Terrestrial Magnetism and Electricity, the Association of Geodesy, the International Commission on Snow, and the Associations of Meteorology and of Oceanography. Thus are insured the continuance of the union and the certainty of prompt resumption of its important work after the war ends. The American Geophysical Union has striven to increase the coordination of international interests, notably with geophysicists of the Western Hemisphere. A prudent action of the American Geophysical Union is a reservation of 200 to 300 copies of its annual Transactions for distribution to members of the International Union of Geodesy and Geophysics when return of peace will permit.

The activities of the International Union of Chemistry are carried on by national committees which are given special assignments. Thus an American committee has continued publication of Annual Tables of Constants and Numerical Data. Also the committees on analytical reactions and reagents, and on nomenclature in organic, biological, and inorganic chemistry have issued during the past year a number of reports.

The possibility has been considered of organizing a Western Hemisphere branch of the International Union, to be merged after the war with the existing Union. Such an organization would be advantageous in bringing together chemists of the American republics, but unfortunately the war, which suggests the move, also prevents it by interfering with travel. On a small scale, however, students of chemistry are being welcomed and trained in the United States, and chemical studies of the natural products of Latin-American countries are in progress.

Most of the normal activities of the International Astronomical Union have been interrupted by the war, but in foreign lands a number of investigations have had support by using local contributions for local needs. With financial aid from the National Research Council the American Astronomical Society has distributed to astronomers in Sweden, Finland, Great Britain, the Union of Soviet Socialist Republics, and Switzerland information regarding advances in a monthly news letter. Further distribution through embassies and by foreign astronomers has brought favorable comment from Australia, Argentina, Mexico, Turkey, and other countries. Continuance of this valuable service is important.

Since the proceedings of the tenth annual session of the International Commission on Illumination (1939) included many valuable contributions to knowledge of lighting development and practice that were not likely to be published because of the war, the United States National Committee has put out an unofficial record of the reports and papers. The volume, 350 pages, is being distributed to individuals and organizations concerned with its interests.

The United States National Committee on International Cooperation in Industrial Standardization has maintained its activities in annual meetings. And the American Standards Association, which cooperated with the international body until the war began, has exchanged data with national standardizing agencies of eleven different countries scattered in all the continents. An Inter-American program is stressing especially contacts with standardizing bodies in Latin America, where need for standardization of manufactured products, parts of machinery, etc., is being recognized and where opportunity for collaboration is auspicious.

The National Research Council has joined with the Social Science Research Council and the American Council of Learned Societies in promoting Latin American studies in the United States in the fields of interest represented by the sponsoring Councils (p. 27).

Individual activites in the division.—Dr. Harlow Shapley was instrumental in aiding in the establishment of a National Astrophysical Observatory at Tonanzintla in the State of Puebla, Mexico. The seismograph in the observatory was originally obtained by the University of Vermont through a grant-in-aid from the National Research Council. A number of American scientists participated in the dedicatory ceremonies.

The chairman of the division has been consulted on three occasions by the Division of Cultural Relations of the Department of State on matters concerned with contacts with Latin-American countries. He has taken steps, which promise to be effective, toward transmitting to Chinese military authorities information important for the welfare of wounded soldiers and civilians. Also he has led in preparing a statement pointing out the common interests of scientists of the Western Hemisphere and indicating the advantages which would accrue from close and generous collaboration. The statement has been translated and published in Spanish and Portuguese.

DIVISION OF EDUCATIONAL RELATIONS

WILLIAM CHARLES WHITE, chairman

The work of the committee on problems of deafness has been carried on under difficulties during the past year. The death of Dr. Rudolf Pintner, chairman of the subcommittee on construction and installation of intelligence and achievement tests, and the entrance of Mr. Richard G. Brill, a member of the committee, into the Navy upset all progress in this field of study. The death of Dr. Pintner also made necessary a change in the subcommittee on evaluation of individual hearing aids in public schools for the hearing.

Dr. Arthur I. Gates, of Teachers College, Columbia University, took over the chairmanship of the latter subcommittee, and this investigation is being carefully and steadily pursued with selective groups of children in the public schools of New York City. Individual hearing aids of excellent quality have been obtained and kept in first-class condition by frequent examination and repair. A control group, carefully selected for comparison with the pupils using these aids, has been set up. Funds for this project were provided by the Council's committee on scientific aids to learning.

The subcommittee on intelligence and achievement surveys of the deaf, of which Prof. Irving S. Fusfeld, of Gallaudet College, is chairman, has been able to obtain considerable material because of the fact that Prof. Fusfeld has been engaged in two surveys of schools for the deaf, one situated in Frederick, Md., and the other in Vancouver, Wash.

The subcommittee on the effect of group hearing aids in schools for the deaf, headed by Dr. Harvey Fletcher, of the Bell Telephone Laboratories, has been obliged to minimize its work because of the demands of the war upon the chairman and the other members of the subcommittee. Funds for the work of this committee were also furnished by the committee on scientific aids to learning, and it has been agreed by the latter committee that the balance of funds not yet used may be made available for the study later on. Some progress by this group has been made through the setting up of a program in the Clarke School for the Deaf at Northampton, Mass.

The chairman of the subcommittee on screening tests, Dr. T. Ernest Newland, entered the service of the Navy and was succeeded by Dr. Harold Westlake, of the Department of Special Education of the State of Pennsylvania. The subcommittee is studying the results of the Pennsylvania plan of instructing school nurses in the use of audiometers and placing the testing of hearing of school children under the general control of county superintendents, obtaining first rough screening, which is to be followed up by more careful individual examination. This subcommittee is also studying work in other States such as Oregon, where screening plans for finding deafness among school children have been carried on. A report should be submitted by this committee during the coming fiscal year.

At a meeting of the division held during the year 1942–43 consideration was given to the function of a division of educational relations in the organization of the National Research Council, with the result that the division recommended to the executive board that it be discontinued as of June 30, 1943, and that the functions of the

Council in relation to educational problems be carried on by committees to be appointed as occasion arises, functioning either through the executive board or through the appropriate division of science and technology. This recommendation was approved by the board, and on June 30 the division was discontinued and the committee on problems of deafness and its subcommittees placed directly under the jurisdiction of the executive board.

DIVISION OF PHYSICAL SCIENCES

LUTHER P. EISENHART, chairman; HENRY A. BARTON, vice chairman

Physicists and mathematicians have been in great demand in connection with the war effort. and as a result fundamental research in these fields with which the division is normally concerned has been replaced by research having a direct bearing on war problems. Several projects of a confidential nature, undertaken at the request of the National Defense Research Committee, have been either completed during the year or have been transferred to the National Defense Research Committee.

Committee on mathematical tables and aids to computation.—This committee, with its several subcommittees, all under the direction of Prof. Raymond C. Archibald, of Brown University, prepared an extensive program for the preparation of mathematical tables and other aids to computation. It was found necessary, however, to curtail the activities of the committee because of the preoccupation of mathematical statisticians with problems of the Mathematical Panel of the National Defense Research Committee and services to the armed forces. There is already in existence a considerable amount of material which the committee felt should be made available for immediate distribution. Accordingly, a quarterly journal entitled "Mathematical Tables and Aids to Computation" was established by the committee, with Professor Archibald as editor. The Rockefeller Foundation has contributed $15,000 to be used as a revolving fund for the publication of the journal, and the editorial costs are met through the general maintenance funds of the division. Three issues of the quarterly have already appeared. In it are published statements concerning recent mathematical tables, errata in existing tables, lists of unpublished tables, and mechanical aids to computation. More than 200 subscriptions have been received, including a number from Great Britain. It has been clearly indicated that the journal is meeting a genuine need.

Publications—Physics of the Earth.—Sales of volumes VIII and IX in the Physics of the Earth series—Terrestrial Magnetism and Electricity, and Hydrology—continue at a gratifying rate. The edition of one of the earlier volumes of the series, Meteorology, is completely exhausted and the division has given consideration to its republication. In view of recent advances in this field, however, it has been decided to postpone publication until the material can be brought up to date.

Committee on training in applied mathematics.—It was reported last year that this joint committee of the divisions of physical sciences and of engineering and industrial research had recommended to the National Science Fund that it cooperate in the establishment of a series of fellowships at the post-doctoral level for training in applied mathematics. Because of the small number of young men available for such training during the war period, the plan has been postponed but will probably be considered again when conditions become more favorable.

DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH

W. F. DURAND, chairman; HOWARD A. POILLON, vice chairman

The work of the advisory committee on metals and minerals and of the war metallurgy committee comprises by far the largest activity with which the division is now concerned. The work is largely financed by the War Production Board and the Office of Scientific Research and Development, contracts covering the work being of the order of a million and a half dollars per year. A large number of investigations and reports of a confidential nature, dealing with problems immediately applicable to the war effort, have been made.

An investigation leading to the improvement of aircraft brakes, undertaken at the request of the National Defense Research Committee, was completed on May 1, 1943. In order to carry out the project Mr. Herbert B. Lewis was borrowed from the Brown and Sharpe Manufacturing Co., Providence, R. I., as a field representative to make contacts with manufacturers and users of brakes for the purpose of studying specific problems and to advise in regard to materials, designs, and methods. He was able to develop a very gratifying spirit of cooperation among those concerned, and the effort which has extended over a period of about two years has resulted in very satisfactory progress. During this period the demands on aircraft brakes have been continually on the increase due to increasing weights and high landing speeds. By a suitable combination of new materials and improved forms of design these requirements have been successfully met, so that at the present time the capacity of the brake expressed in terms of heat absorption and dissipation per unit of area of the brake surfaces has been increased about threefold, and the present outlook is entirely reassuring as to the ability of the industry to meet successfully the rising trend of demand.

The special committee on concrete research was enlarged during the year in order to provide more adequate representation of all organizations concerned with concrete design and construction. A request was received from the United States Maritime Commission for all available information relating to six specific problems in the domain of concrete design and construction, especially as relating to concrete ships and barges. Upon authorization from the Office of Scientific Research and Development a field agent was employed to undertake the investigation. Mr. Emil Vidal first undertook the assignment and after his death Mr. A. G. Timms, of the Portland Cement Association, took up the investigation and submitted a report covering the activities of both investigators, which contained valuable information, much of it in carefully tabulated form. As a further item in this investigation the librarian of the United States Bureau of Reclamation at Denver prepared a bibliography of concrete design and construction, which was received with high appreciation by the Maritime Commission.

The Highway Research Board, while somewhat handicapped by wartime conditions, has continued its constructive activities. Bulletins dealing with problems of immediate interest in the war effort have been issued in considerable number, and the meetings of the board, while necessarily held outside of Washington because of the limitations of hotel and meeting accommodations, have been exceptionally well attended.

The Industrial Research Institute has continued to operate as a quasi-independent organization within the framework of the division. Organized about 5 years ago largely through the interest of the former director of the division, Mr. Maurice Holland, it at present comprises some 55 members, representative for the most part of smaller companies interested in research. Its stated purpose is "to promote, through the cooperative efforts of its members, constant improvement of methods and more economical and effective management in industrial research."

The committee on heat transmission continues its activities, part of which is expressed in the issuance of a second edition of a standard textbook on the subject of heat transmission, prepared by Dr. W. H. McAdams.

The conference on electrical insulation, with headquarters in New York City, conducted among other projects a study of the problem of commutation of direct-current motors at high altitudes. Brushes ordinarily deteriorate rapidly when so used. This study was carried on in cooperation with the National Bureau of Standards, the Army Procurement at Wright Field, and the manufacturers of electric motors for aircraft service. As a result of these studies the difficulty has been satisfactorily overcome.

Another study had to do with the results of radio equipment in humid climates to which a promising solution was found.

A committee on quartermaster problems has recently been established at the request of the Office of the Quartermaster General of the Army for the investigation of technical problems arising in connection with the design and manufacture of special equipment for the Army. Funds for the work of the committee have been provided under contract with the Office of Scientific Research and Development. Dr. L. W. Bass, of the New England Industrial Research Foundation, has been made chairman of the committee, with Prof. W. George Parks, of Rhode Island State College, as technical adviser.

DIVISION OF CHEMISTRY AND CHEMICAL TECHNOLOGY

W. MANSFIELD CLARK, chairman; HARRIS W. CHADWELL, vice chairman

The work of the division of chemistry and chemical technology has become largely a matter of prompt attention to special requests, few of which could be referred to previously established committees. These problems, which have required the judgment of or investigation by special groups of chemists, have been considered by special conferences, committees, or panels. Such groups have changed according to occasion and hence have not been appointed on the customary yearly basis.

The close cooperation of the division with the division of medical sciences and the Committee on Medical Research of the Office of Scientific Research and Development, has been especially noteworthy.

At the request of the Committee on Medical Research the division organized a program of synthesis in a difficult, special field, beginning in the fall of 1941. That program has been continued during the last fiscal year with admirable cooperation and exchange of information between volunteers and chemists whose work is supported under contracts by the Office of Scientific Research and Development. The volunteers include chemists of academic and commercial institutions in the United States and Canada.

In May 1942 the Committee on Medical Research requested the division to investigate the properties of one of the principal antimalarial drugs. A committee of seven members was appointed, with cooperating representatives of Government agencies. The pharmacological studies were organized by Dr. E. K. Marshall, Jr., of Johns Hopkins University, and the clinical investigations by Dr. James A. Shannon, of New York University Medical College. The report on extensive chemical, pharmacological and clinical investigations was submitted to the Committee on Medical Research on October 3, 1942.

Several laboratories, organized with the advice of the malaria conference and operating under contract with the Office of Scientific Research and Development had been testing new drugs for antimalarial activity when it became evident that a systematic collection of the accumulated data was essential. Accordingly, the division organized on behalf of the Committee on Medical Research the survey of antimalarial drugs, the work of which is being conducted under contract between the Office of Scientific Research and Development and Johns Hopkins University, with Dr. Frederick Y. Wiselogle in charge.

Proposals for the synthesis of quinine having come to the attention of the chairman of the division, a special committee of experts was formed to advise the Committee on Medical Research regarding the matter.

A panel on the synthesis of antimalarial drugs, initially organized to stimulate volunteer efforts, has been used as an advisory body by the Committee on Medical Research and is now engaged in arranging for and supervising contractual work in a number of institutions. It is acting in close cooperation with the panel on the pharmacology of antimalarial drugs, the panel on clinical testing of antimalarial drugs, and the subcommittee on the coordination of malarial studies of the division of medical sciences.

There has also been created in the division a panel on the biochemistry of antimalarial drugs, having as its objective the uncovering of theoretical leads which may be put to direct practical tests.

The Army's manual TM–8–227, designed for use in laboratories of Army hospitals, was submitted to the Council for recommendations on revision. Dr. D. D. Van Slyke, of the Rockefeller Institute for Medical Research, with the aid of a committee, undertook the revision of the chemical sections. Dr. Van Slyke also seized the occasion to devise a new analytical method which will enable the surgeons in the field to determine with a pocket kit hemoglobin and plasma protein levels of blood with a precision adequate for guidance in the treatment of shock.

During the year representation on the Council through this division was granted to the American Society for X-ray and Electron Diffraction, the organization of which had been stimulated by the division's committee on the subject.

The committee on Annual Tables of Constants and Numerical Data reports excellent progress in carrying forward its essential work under exceptionally difficult circumstances. The financial support of this undertaking has been most gratifying.

The committee on chemical data for ceramists has completed its final report, which has been published as a Bulletin of the National Research Council.

The committee on the location of new and rare instruments has been given a year's trial. Any ambitious program would require an extensive and expensive survey, with considerable clerical help. By following a policy of simplicity and directness the chairman of the committee has rendered distinct aid at low cost and with minimum manpower.

The death of Dr. Harrison E. Howe has deprived the division of a devoted friend, and the committee on nonmetallic and nonmineral critical and strategic material of its chairman. This committee was set up jointly by the National Academy of Sciences and the National Research Council. Mr. Sidney D. Kirkpatrick, editor of Chemical and Metallurgical Engineering, has been appointed to succeed Dr. Howe as its chairman.

DIVISION OF GEOLOGY AND GEOGRAPHY

WALTER H. BUCHER, chairman; RICHARD HARTSHORNE, vice chairman

Research for new deposits of strategic minerals and sources of oil and gas and technical aid in their development necessarily demanded first attention of geologists in connection with the war effort. In the broad field of geography, where opportunities for making important contributions loom large, nearly every professional worker was quickly drafted into service in the numerous technical bodies organized by the armed forces and Government agencies on our entrance into the war. In spite of handicaps the division has undertaken a number of projects in the field of geology, two of which deserve special mention.

Bibliography of military geology and geography.—Continuing this bibliography, which was compiled before the entrance of this country into the war and distributed early in January 1942, the first annual supplement was prepared under the chairman's direction by Miss Marie Siegrist, bibliographer of the Geological Society of America, and Miss Elizabeth T. Platt, the late librarian of the American Geographical Society. Like the original, the supplement was published and widely distributed free of charge by the Geological Society in cooperation with the division.

Map presentation of physical features of military importance.—A committee was organized under the direction of Prof. Samuel Van Valkenberg, of Clark University, for the purpose of investigating the methods of map presentation of physical features of military importance. One major project was organized—the preparation of a physiographic map, similar to the well-known map of the United States drawn by Prof. N. M. Fenneman, of the University of Cincinnati, for the northern half of the Mediterranean region. To make it useful as a wall map a large scale was chosen (1:500,000), and the areas are to be colored according to a unified scheme. Each physiographic unit is to be illustrated by typical photographs and reproductions of characteristic sections of large-scale topographic maps, assembled in folders and accompanied by a brief text written in nontechnical language.

So far the maps of Sicily, Calabria, the Peleponnesus, and the Dinaric regions have been completed, but the progress of the work is being retarded, if not jeopardized by the withdrawal of key men into work with geographic sections of the armed forces.

Geography.—A valuable contribution to the war effort was made through the Census of Professional Geographers, based on questionnaires sent out in 1941. Over 850 returns were tabulated in a master-combined list. This list has been in constant use in connection with the placement in Government agencies of qualified geographers.

In order to derive a correct picture of the manpower situation from such a list, standards had to be set up and agreed upon by which the different kinds and grades of professional training and achievement in geography are to be defined. This task was undertaken by a subcommittee headed by Mr. W. L. G. Joerg, of The National Archives. The study of the questionnaires by the committee has been facilitated by microfilming them, and a framework has been created for the detailed tabulation of all the data contained in them. A first draft of definitions of types of professional training has been submitted for discussion, and the detailed tabulation is being carried out. The ultimate result is expected to give a synoptical view of the manpower situation in professional geography in the United States.

Through its executive secretary, Dr. George B. Cressey, of Syracuse University, the committee on geography of Eastern and Southern Asia, which was created to meet a definite need, has done much in locating and developing trained workers in the field indicated and in providing literature and other assistance. The funds for this work were provided by the American Council of Learned Societies and the National Research Council.

Soon after our entry into the war practically every competent geographer found himself drawn into technical employment with the armed forces or with one of the Government agencies, or overburdened with teaching. One result of this has been the practical suspension of research activities by the geographical section of the division.

Geology.—In geology the situation is different. Only a few of the diverse fields of this science bear directly on the war effort (mineralogy, economic geology, and engineering geology), and the armed forces, with far more pressing needs, have been slow in inducting geologists as technical advisers. In the search for raw materials the urgent demand is for young men capable of doing the necessary "leg work" rather than for maturer men. A manpower shortage is threatening in geology largely in the ranks of well-trained young men capable of pushing with vigor the strenuous field programs of the surveys and private companies which are needed to restore the depleted mineral and oil reserves. As a result a considerable number of geologists have remained in positions which have enabled them to continue in abstract scientific research. Accordingly, the work of some of the committees could be carried on, and one new committee was appointed for study of the common problems of genetics and paleontology. The activities of the committees on ore deposits, density currents, and cryptovolcanic structures have had to be suspended for the duration of the war.

The incorporation of corrections and additions to the preliminary edition of the tectonic map of the United States and the final drafting of the manuscript map were completed last spring by Dr. Philip B. King, assistant geologist of the United States Geological Survey and vice chairman of the committee on tectonics of the division. His masterly handling of this unusually difficult task deserves special recognition.

This tectonic map is the first attempt to assemble for so large a country all known details of structure of sufficient size to be shown at all. It will prove a powerful stimulus to further field studies and to attempts to grasp the physical meaning of the features shown. The undertaking was made possible through grants-in-aid and conference funds from the National Research Council, a contribution from the Geological Society of America toward the expense of the preliminary edition, and, above all, the support of the American Association of Petroleum Geologists in the printing and distribution of the preliminary and final editions. Technically, the work is the result of the whole-hearted cooperation which the committee, under the chairmanship of Dr. C. R. Longwell, of Yale University, received from numerous geologists and geological organizations in all parts of the country. It is especially indebted to the United States Geological Survey, which gave official support and made available facilities and the services of competent men, particularly Dr. King.

The second great enterprise of the division in original map compilation, the glacial map of North America, has also reached the final stage of printing. It is accompanied by an explanatory text which will be issued in pamphlet form. The Geological Society of America has agreed to publish this work, which was made possible through grants-in-aid and conference funds from the National Research Council, contributions from the American Geographical Society, and the support of the Geological Society of America.

The work represents a triumph of effective international cooperation between the United States and Canadian members of the committee under the chairmanship of Dr. R. F. Flint, of Yale University. It owes a special debt to the Geological Survey of Canada, which was in a position to make large contributions of new data and made available its facilities and much of the time of Dr. D. A. Nichols. The latter, a member of the committee, not only assembled the Canadian material but also supervised the final drafting of the map.

Several years ago a large report on ore deposits as related to structural features was completed by the committee on processes of ore deposition. This large volume, with papers by 70 contributors, was published in the latter part of 1942. It was edited by the chairman of the committee, Dr. W. H. Newhouse, of Massachusetts Institute of Technology, and published by the Princeton University Press. It is a valuable contribution to the literature dealing with the influence of structure on the accumulation of ore deposits.

The preparation and publication of new correlation charts for all the sedimentary formations of North America, which was begun a number of years ago by the committee on stratigraphy, is making steady progress under the chairmanship of Dr. Carl O. Dunbar, of

Yale University. The charts and accompanying text are published in the Bulletin of the Geological Society of America as they are completed. Reprints may be secured from the society at cost. Three of the projected series, those on Silurian, Devonian, and Cretaceous, have appeared in print so far. Five others are either completed or nearing completion. Each chart is the product of critical analysis and discussion by a separate subcommittee composed of men especially familiar with the system involved.

The annual report of the committee on the measurement of geologic time (1941–42), Dr. Alfred C. Lane, of Tufts College, chairman, was mimeographed and distributed in the latter part of 1942. It follows the plan of the earlier reports, comprising a number of papers on diverse subjects and an annotated bibliography of the whole field covered by the committee. This annual summary of the widely scattered literature is prepared by the vice chairman of the committee, Dr. J. P. Marble, of the United States National Museum, and constitutes an invaluable tool. Through these annual reports and through constant correspondence with workers in all parts of the globe the committee exerts a wide influence on the studies in this important field.

The purpose of the committee on marine ecology as related to paleontology, Dr. Harry S. Ladd, of the United States Geological Survey, chairman, is to make available to paleontologists information concerning new developments in modern ecology and to stimulate cooperation between ecologists and paleontologists in the study of paleo-ecological problems. To this end the second annual report of the committee, which was distributed in the early part of 1943, makes available contributions through papers on specific ecological subjects, including bibliographic lists and reports on paleo-ecological subjects. It is hoped that these reports will gain the widest possible distribution among plant and animal ecologists as well as among paleontologists.

The committee on the deformation of the Ross Shelf ice was organized to exploit, in the interest of structural geology, the wealth of air photographs (about 1,000) of the Ross Shelf ice, chiefly of the region about the Bay of Whales, which were secured by the three Antarctic expeditions organized and conducted by Admiral Byrd in 1929, 1934, and 1940. In the 10 years between the first and the last of these expeditions the opposing "shores" of thick ice have moved toward each other to the extent of 5 miles. This movement has produced complicated fold and fault patterns in the thinner shelf ice between them, and larger fold and shear phenomena where the shores met head-on at the upper end of the bay. In many respects this region represents a large-scale model of the sort of deformation which has produced the folded mountain belts of the earth's surface.

With the aid of the photographs and important quantitative data secured on the ground chiefly during the last expedition, it is possible to determine with a fair degree of accuracy the major elements that have controlled the mechanics of deformation in the case of the Ross Shelf ice. It is hoped that through a critical comparison of the structural features observed on it with those of comparable though much larger structures of the earth's crust, valuable insight may be gained into the mechanics of the processes that produced them.

Maj. Paul A. Siple, who took part in the expeditions, is in charge of the work of assembling the data and preparing the necessary maps.

Working under his supervision, Miss Mary E. Dean, who has been cartographic assistant of the United States Antarctic Service, has completed the map of the Bay of Whales, showing the outlines for 1929, 1934, and 1940. Other work is in progress.

The committee on common problems of genetics and paleontology comprises two sections—one centered on the west coast deals with the botanical aspects and one centered on the east coast is devoted to the geological aspects of the field.

The origin of species is still far from being understood. Two lines of research have added much knowledge that was not available at the time of the classical debates on this topic. The nature of short-range changes has been shown in startling new light by the discoveries of genetics, while paleontology has produced a wealth of new material capable of quantitative analysis which is beginning to shed light on the long-range changes. The two fields are clearly complementary, but each science has developed a nomenclature and technique of such intricacy that many workers in the two fields have lost contact with each other. This committee aims to bring the two groups together by providing joint discussions and by producing a symposium that will furnish essential keys to the literature in both fields.

DIVISION OF MEDICAL SCIENCES

Lewis H. Weed, chairman; Wilburt C. Davison and Robert F. Loeb, vice chairmen

The committees of the division of medical sciences have exercised and continue to exercise important advisory functions in the wide field of medical sciences. It would be most desirable if all of the divisional interests represented by standing committees could receive ample financial support, but during the period of the war it seems futile to hope for additional funds, particularly in those fields which seem to have but indirect relationship to emergency problems in medicine.

American Registry of Pathology.—The activities of the Registry, which is lodged in and intimately connected with the Army Medical Museum, have continued in the customary effective way during the past year. The staff of the Army Medical Museum has been increased considerably by the assignment of additional officers for duty there, and the flow of pathological materials emanating from the war has assumed very large volume. The Registry will necessarily profit by such additional pathological material. In spite of the unsettled conditions due to the war, there has been very little reduction in the number of cases received from civilian contributors. The Registry may, however, suffer from the absence of so many physicians on active duty since the answers to Registry follow-up letters will not be high. However, in the Bladder Tumor Registry the follow-ups have been particularly encouraging.

The Registry of Pathology has received during the year appropriations of $1,500 each from the American Academy of Ophthalmology and Otolaryngology, the American Dental Association, and the American Urological Association. In addition, the American Dental Association appropriated $478 for the new edition of the Atlas of Dental and Oral Pathology. The American Broncho-Esophagological

Association has also contributed $50. The material in the Registry collections and in the museum has been used for study by visiting physicians from various sections of the United States, as well as from Central and South American countries, England, and China. New editions of the Atlases of Ophthalmic, Otolaryngic, and Dental and Oral Pathology have been prepared during the year and have been in great demand in the several fields. The following table shows accessions to the Registry during the past year:

	1942	Total
Ophthalmic pathology	1, 382	12, 930
Otolaryngic pathology	251	1, 936
Bladder tumor	168	4, 378
Kidney tumor	46	604
Lymphatic tumor	219	1, 344
Skin	161	1, 277
General tumors	254	1, 006
Chest tumors	57	244
Neuropathologic	29	61
Dental and oral	367	2, 739

Committee for research in problems of sex.—This committee, which has been one of the most effective groups in the division of medical sciences, has just completed its twenty-second year of activity. The membership of the committee has been changed only infrequently, and it is hoped that no changes in personnel will be necessary for many years. The work of the committee has been supported by the latest grant of the Rockefeller Foundation in the amount of $150,000 over the 3-year period from July 1, 1941, to June 30, 1944. During the present year (1942–43) the committee worked under a total budget of $43,900. Of this sum $41,400 was devoted to grants-in-aid and the remainder to administrative purposes. There are 15 projects under support, and while most of the projects were for relatively small amounts, several of them were of considerable magnitude. The larger grants represented for the most part continuation of previous support. The budget recommended to the division by the committee for the year 1943–44 aggregated $50,825. Of this total $47,325 was devoted to 12 grants-in-aid of research. Administration called for the expenditure of $2,000, and a special item of $1,500 for conferences was included in the budget. While the sum represents a larger allocation for the year than in 1942–43, the increase may be accounted for by a marked augmentation of the grant to Indiana University for studies on human sex behavior under Prof. Alfred C. Kinsey.

The war has shown a considerable effect on the projects under support by the committee for research in problems of sex. However, certain projects have proved to be of utmost importance, and the field of investigation seems to be as promising as in the past. The number of papers published during the year has been large, and the excellence of the work has been thoroughly maintained. It is hoped that continuing support over a number of years can be obtained for the future program of the committee.

Committee on research in endocrinology.—The committee has completed 6 years of service, and during this period has allotted approximately $240,000, all of which represented appropriations from the John and Mary R. Markle Foundation. During the first 5 years of activity 56 different investigators were under subsidy by the committee. The large number aided was made possible by careful attention of the committee to the progress reported by individuals receiving grants.

During the current year the distractions of the war have seriously interfered with the research freedom on endocrine problems. Occasionally by change of emphasis the investigators have been able to apply their observations to questions directly related to the military effort in medicine. With the withdrawal of many of the investigators into the armed services the applications for grants this spring diminished in number. In the period 1942–43 no outstanding discoveries were reported, but the investigators who continued in their laboratories have made important steps forward. Insofar as possible the committee has continued to favor basic scientific studies in its special field in order to preserve continuity of effort in directions of permanent and highly promising significance. There continues to be abundant evidence that the generous financial support from the Markle Foundation has greatly stimulated and promoted progress in the fundamental realm of endocrinology.

During the past year (1942–43) the committee worked under a budget of $39,450. Of this total $37,950 was devoted to support of 18 projects, and administration was provided for by the sum of $1,500. At the annual meeting of the committee on April 24, 1943, 13 grants in aid of research, totaling $27,900, were approved.

During the last 2 years not all the appropriation made available by the John and Mary R. Markle Foundation has been allocated in the form of grants, so that it was recommended that for the next 2-year period the appropriation be reduced from $60,000 to $35,000 per year. This has been done, and it is expected that this sum will make it possible for the committee to support amply those investigations deemed eminently worth while.

Advisory committee on drug addiction.—The small advisory committee on drug addiction which continued the work of the original committee on drug addiction has been active during the past year. The committee acted as adviser on two drugs—demerol and desomorphine. The first of these does not seem to have any advantage over morphine except in its possible usefulness in conserving morphine supplies. Desomorphine has been widely used in Europe, but the evidence thus far accumulated is that it has no advantage over monoacetylmorphine. It seems likely that this committee will prove useful as an advisory body in the large program of work in this field now being carried out under the general auspices of the United States Public Health Service.

Committees on military medicine.—For more than 3 years the division of medical sciences has acted in an advisory capacity to the Surgeons General and for this purpose has established consultative groups covering the various medical subjects concerned in the war effort. While at first serving in an advisory capacity only to the Surgeons General, the activities of these committees have been extended to other Federal agencies. In a previous report the relationship of these advisory committees to the Committee on Medical Research of the Office of Scientific Research and Development was described. In addition to the relationship of these committees to the Surgeons General and to the Committee on Medical Research, the division has served other Government agencies. The committee on drugs and medical supplies has been the chief advisory agency in this field to the War Production Board. Its contribution by way of advice and recommendation has been great. Under the general jurisdiction of this committee the national program for the conservation of quinine has been developed.

Recently the Food Distribution Administration requested that the division establish a subcommittee on medical food requirements to function under the jurisdiction of the committee on drugs and medical supplies. The general responsibilities of this new subcommittee lie in the determination of medical food requirements in excess of the allotments provided by the national rationing system. The advice of the subcommittee is sought not only in the case of individual patients suffering with certain diseases but also with the wide problem of food rationing for hospitals.

The committee on chemotherapeutic and other agents has served as the advisory body to the Committee on Medical Research in regard to the clinical and experimental use of penicillin. The Committee on Medical Research has sponsored a program of cooperative effort looking to the increased production of the product and has been concerned with the conservative employment of such supplies as have been available for civilian purposes. The committee has designated Dr. Chester S. Keefer, of Boston University, chairman of the committee on chemotherapeutic and other agents, as its executive agent in determining the distribution of the drug to civilian institutions and physicians. Dr. Keefer has carried out this exacting task with great wisdom and judgment; the results of his careful distribution are apparent in the excellent clinical studies and reports based upon the small quantities of the drug thus far available. The general policies for the distribution of the drug and the types of clinical diseases for which the drug is supplied are determined by the members of the committee on chemotherapeutic and other agents.

From the deliberation of the various committees many recommendations have gone forward to the Surgeons General, to the Committee on Medical Research, to the War Production Board, to the Food Distribution Administration, to the Office of Foreign Relief and Rehabilitation, and to other Federal agencies. The relationship of these committees to the war effort has become even more clearly defined during the past year. They are serving as bodies which furnish the Army and Navy Medical Corps, the Public Heath Service, and other Federal agencies with professional advice. Also these advisory groups function in medical research pertaining to the war, as defined by contract between the Office of Scientific Research and Development and the National Academy of Sciences and the National Research Council. To further this relationship the chairmen of all of the 12 main committees have been appointed by Dr. Vannevar Bush, Director of the Office of Scientific Research and Development, as consultants to the Committee on Medical Research.

Some idea of the activities of the division in connection with the war effort may be had from the following summary of committee meetings and conferences. During the first 6 months of the year under report the division held 90 meetings of committees and 37 special conferences. During the second 6 months there were 105 meetings and 49 conferences. Likewise, the magnitude of the undertakings may be judged by the sums involved in Government contracts made by the

Office of Scientific Research and Development with various institutions in this country on recommendation of the committees and subcommittees of the division. To June 30 the contracts, 378 in number, aggregated a total financial commitment of $9,192,783.96. These contracts were all recommended by the Committee on Medical Research to the Director of the Office of Scientific Research and Development, and for the most part the actions of the Committee on Medical Research were based on recommendations of the committees of the division. Some of the contracts were made on the recommendation of the division of chemistry and chemical technology.

As the war proceeded into its second year it became apparent that certain medical problems were of paramount medical importance from the operational standpoint. Foremost among these problems was malaria, its prevention, suppression, and therapy. The subject of malaria was initially handled by the subcommittee on tropical diseases, but as the demand for new antimalarials developed and as the need for wide study of the disease and its medication increased, a conference group was established. As the research program for a comprehensive investigation of all aspects of the disease enlarged, it was desirable to replace the ad hoc conference group and to appoint four panels under the jurisdiction of a coordinating group. Two of these panels—one on the synthesis of antimalarials and one on the biochemistry of antimalarials—function within the division of chemistry and chemical technology, while the other two—one on the pharmacology of antimalarials and one on the clinical testing of antimalarials—operate within the division of medical sciences. The subcommittee on the coordination of malarial studies is composed of the chairmen of the four panels, with Dr. Frederick Hanes, of Duke University, as chairman. As ex officio members the coordinating group includes the chairmen of the committees on medicine and on chemotherapeutic and other agents, and of the subcommittee on tropical diseases. The coordinating group carries on its functions relatively independently, with the development of new drugs by the chemists, the testing of new products by the pharmacologists, and the final determination of the clinical value in man by the physicians.

As one of the important adjuncts to the advisory functions of the committees on military medicine, the division has established a small office of information, with Dr. Oswei Temkin, of the department of the history of medicine, Johns Hopkins University, in charge, and with Dr. Elizabeth Ramsay as associate. The establishment of this informational office was made possible by a generous grant of $17,000 from the Carnegie Corporation of New York. In order to obtain a broad picture of current medical advance, newspapers, medical, and scientific periodicals, Government publications, and miscellaneous sources are scanned for articles relative to war medicine. From the newspapers and general magazines the clipping files accumulated in the first 6 months contained approximately 1,100 items. From the medical and scientific periodicals and Government publications, and from important miscellaneous sources a far greater number of references have been obtained and cataloged. Up to the end of the year approximately 16,000 index cards had been filed. The information obtained by the staff in this divisional activity is distributed by a typed list of medical news items, issued each workday. The index files, as well as the personnel of the office, are frequently consulted for information, and in addition requests for translation of articles from foreign languages have been met.

Two definitive reports have thus far been prepared by the staff of the informational office: Report on the Treatment of Thermal Burns (79 pages, dated February 17, 1943), and Report on Blast Injuries (54 pages, dated June 11, 1943). These reports, dealing with both published materials and "restricted" documents, have been planographed and distributed widely among medical officers and investigators in the United States, Canada, and Great Britain. It may be said that the work of this group is of increasing importance to the war effort in medicine. Carefully selected materials properly indexed have first to be assembled. All the materials collected will ultimately prove of great service in the medical history of the present World War.

Another activity of the division in the field of military medicine has related to the encouragement and development of teaching of tropical medicine in the medical schools of this country. A very generous appropriation of $40,000 was made by the John and Mary R. Markle Foundation on June 25, 1942, to the National Research Council to establish a number of lectureships in tropical medicine. This undertaking, first suggested by Brig. Gen. James S. Simmons, liaison officer to the division from the War Department and director of the Division of Preventive Medicine, Office of the Surgeon General, was designed to foster interest by medical students in tropical diseases, as the medical students of today will unquestionably be confronted with the responsibility for the treatment of these diseases. Originally the plan called for dispatch to medical schools of a number of Army and Navy officers, as well as outstanding civilian authorities. With the increasing demands for the services of the medical officers it did not prove feasible to send the officers on any protracted tours. The program has been fairly successful, though it has been modified largely by the selection of a single lecturer to make an extensive tour of the schools. The first lecturer of this nature has been succeeded by a second, and it is hoped that the plan may be followed throughout the coming year. Certainly the emphasis given to the teaching of tropical diseases by this generous appropriation has been reflected in increased facilities for this purpose in many medical schools, and there has resulted a general improvement and enlargement of the courses of instruction. It is obvious that the study of tropical diseases must be advanced in every medical school in this country.

In addition to this major appropriation for tropical diseases, the division of medical sciences has handled a grant made to the Research Council by the John and Mary R. Markle Foundation in the amount of $3,000, to enable the Office of the Surgeon General of the Army to distribute to medical schools of this country a survey of the latest information concerning medical problems in all countries. The material is largely related to the problems of the tropics and consists of charts, maps, lantern slides, etc., illustrating the geographical distribution and incidence of tropical diseases.

DIVISION OF BIOLOGY AND AGRICULTURE

ROBERT F. GRIGGS, chairman; L. A. MAYNARD, vice chairman

A conference of biologists, called by the Council in August 1942 to consider how they could best contribute to the war effort, developed several specific suggestions. One recommendation proposed the establishment of a central committee which would function for the biological sciences in a similar way to that of the very successful Committee on Medical Research. Dr. Douglas Whitaker, of Stanford University, was asked to formulate the project and spent some months in Washington surveying the situation and outlining procedure. Funds in sufficient amount to implement the project could not be obtained, however.

Emergency Food Plants and Poisonous Plants of the Islands of the Pacific, the first of the pocket manuals of edible and poisonous plants of various war areas which were requested by the armed services and prepared by collaborators of the division, appeared in May. Manuscripts for similar illustrated booklets on edible plants of the Arctic, the Caribbean area, the Guianas, and Brazil are in press.

To avoid duplication of effort in preparing such manuals a conference called to consider the matter suggested that all recommendations concerning the survival of isolated men be cleared through the Ethnogeographic Board. The division will assist in problems arising in the field of biology. The Ethnogeographic Board requested the division to confer with parasitologists and medical men from the armed forces concerning parasites likely to affect our troops in the Southwest Pacific. A report on trematode diseases and their molluscan intermediate hosts in the islands of this region was prepared by a small ad hoc committee of the division and transmitted to the Army and Navy.

The practicability of spinning palmetto fiber into twine was investigated at the request of the War Production Board. After thorough investigation the undertaking of such a project was discouraged.

With its expanding operations the membership of the food and nutrition board has increased from 37 to 44, and the number of committees from 9 to 12. Thirty-five experts in their fields who are not members of the board are committee members. Dr. Frank G. Boudreau continued as chairman throughout the year, with Prof. H. C. Sherman as vice chairman. The executive secretary, Dr. Frank L. Gunderson, served as full-time coordinator of the activities of the board, assisted since April 1943 by Dr. Ross A. Gortner, Jr., as associate executive secretary.

The enrichment of from 50 to 75 percent of all family flour and bakery bread with thiamine, niacin, and iron was brought about late in 1942 through actions which included recommendations of the board and the committee on cereals. In December the War Food Administrator required in his first food-distribution order that, effective January 18, 1943, all wartime bakery bread must be enriched according to the standards originally recommended by the board. Subsequently the board recommended to the Administrator that the order include all family flour. The board's recommendations for revisions of the enriched flour and bread standards were the basis of an official hearing on enriched flour, bread, and farina, held under Food and Drug Administration auspices on April 19. The enrichment of corn-meal and grits in the Southeastern States has also been encouraged by the board.

The committee on nutritional aspects of ageing, with financial assistance from the Josiah Macy, Jr., Foundation, has a program of research well under way at the Elgin State Hospital. The investigation will probably continue for several years.

The committee on protein foods has answered two inquiries from the Food Distribution Administration relating to (*a*) the minimum daily allowance of protein for civilian purposes and (*b*) the percentage of this minimum daily allowance which should come from biologically superior protein foods. It is also studying the total protein supply available for civilian consumption and has compiled a report on the nutritive value and commercial availability of the proteins of yeast, soybeans, peanuts, cereal germs, etc., for supplementing the decreased supplies of meat and dairy products.

The committee on dietary allowances has formulated and transmitted for the Office of the Surgeon General of the Army suggestions concerning minimum amounts of dietary essentials necessary for men in the armed forces for short emergency periods (not exceeding 6 months). The values are approximately 70 percent of those in the recommended dietary allowances.

The committee on the nutrition of industrial workers has made a report on the allocation of foods to industrial food services, and another on the effects of vitamin supplements on workers. The effects of toxic chemicals and adverse conditions of temperature and humidity on the nutritional needs of workers is also being studied.

The committee on food composition, aided by Dr. Paul L. Pavcek, technical secretary, is assembling, coordinating, and appraising food-composition information for the War Department. With the cooperation of Federal, academic, and industrial laboratories the committee is providing information relating to all foods of interest to the armed services for use both here and abroad, including garrison, special, and emergency rations, dehydrated vegetables and soups. Specific methods of vitamin assay are being studied, and experiments on the loss of nutrients in the preparation of foods are in progress. On the request of the Committee on Medical Research the committee has taken over the technical supervision of four research projects under the Office of Scientific Research and Development contracts relating to food composition.

The relation of nutrition to the incidence of dental caries was brought out by the reports of the Selective Service System medical examiners, which showed dental caries a leading cause for rejection. During the last year the board has engaged a technically qualified bibliographer and is conducting a survey on dental caries which it is hoped will help bring orderliness in thought and form a foundation for a wise research program.

The committee on milk and the committee on fats have each made surveys and reports for the Federal departments concerned for the purpose of helping further to make the limited supplies of these foods serve the needs of American armed forces, of our civilians, and of the Allied Nations. The latest was a report on margarine.

Two reports were transmitted to the Food Distribution Administration giving the board's recommendations on the preferential allocation of fats and oils, and the preferential allocation of sugar.

A survey of the Nation's supply of synthetic and natural concentrates of vitamins was made by a special committee. Based on this survey the board made recommendations regarding the need for expanding production facilities to meet the minimum requirements of the American civilian propulation.

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At the United Nations Conference on Food and Agriculture, Dr. Frank G. Boudreau served as technical adviser to Surgeon General Parran and as secretary of the first section, relating to consumption levels and requirements.

Dr. Lydia J. Roberts, of the University of Chicago, spent 6 weeks in Puerto Rico studying nutritional conditions at the request of Dr. M. L. Wilson, of the Food Distribution Administration. On a second trip she set up a nutrition workshop program for the island.

The following reports by the board and its various committees have been made available for general distribution through the Reprint and Circular Series of the Council—The Food and Nutrition of Industrial Workers in Wartime (No. 110), April 1942; The Nation's Protein Supply (No. 114), August 1942; Recommended Dietary Allowances (No. 115), January 1943.

The committee on wartime diet made an exhaustive study and report on the comparative essentiality of foods, dividing the major staple foods for the United States into three groups—(1) those considered essential, expedient, or approved; (2) those considered intermediate; and (3) the foods adjudged dispensable or nonessential during the wartime emergency. This listing is of basic importance in our national food program.

The food and nutrition board is now prepared to investigate the complex questions concerning nourishment of our own people, helping other Allied Nations, and providing as best we can for the inhabitants of countries reoccupied by the Allies.

The committee on animal health held its first meeting on March 4, 1943. It will be concerned with research and the recommendation of practical measures based on the results of research on any problem relating to health or productivity of our animal populations. The work will be integrated with that of the Inter-Association Committee on Animal Disease and Production of the five national societies—American Veterinary Medical Association, United States Livestock Sanitary Association, American Society of Animal Production, Poultry Science Association, and Dairy Science Association. Three subcommittees have been appointed to study bloat in ruminants, fast milking, and avoiding trauma in relation to prevention of mastitis, saving labor and increasing milk production, and losses in young pigs.

The committee on animal nutrition sponsored several reports which were prepared by its various subcommittees—War Emergency Plans for Raising Calves and Heifers, the Nutrition of Swine During the War Emergency, the Effect of Storage of Grains on Their Nutritive Value, Suggestions for Meeting the Poultry Feed Situation During 1943, Is Animal Protein an Essential Constituent of Swine and Poultry Rations? and the Use of Phosphorus-Containing Substitutes for Bone Meal in Livestock Feeding, with Particular Reference to the Fluorine Hazard. Other reports which are in preparation deal with the nutritional requirements of hogs and symptoms of nutritional deficiencies, tables of vitamin values of animal feeds, and digestibility of feeds.

Resolutions were submitted to the appropriate Government agencies on the inadequacy of feed supplies available to farmers, the need for salvage of byproducts of alcohol plants to provide additional protein and vitamins for animal feeding, the usefulness of urea as a protein substitute in feeding cattle and sheep, the production and use of defluorinated rock phosphate to supplement the inadequate supply of bone meal, and the importance of fish meal as a feed for poultry and swine.

The committee has considered the problems arising from the increased competition between animals and man for the same basic food supplies. The paramount importance of adequate human nutrition is recognized, but insofar as milk, meat, and eggs are deemed essential for the human food supply the needs of animals must also be taken into account in food planning.

The chief function of the committee on crop protection, organized in the fall of 1942, is to coordinate the activities of the war committees of the American Phytopathological Society and the American Association of Economic Entomologists. They met in February with the war committee of the American Phytopathological Society. The reports which these groups have compiled on the occurrence and control of diseases and insect pests are of great value in our intensified extension program. The committee sponsored a symposium on Dosage Experiments with Insecticides and Fungicides in relation to stretching available supplies of critical materials. A statement was prepared on the need for investigating the effects on insect populations and disease of the radical changes caused by war needs in crops grown over wide areas.

The committee on fisheries resources, concerned with the larger fisheries, was appointed partly as a result of a conference on resources of the sea and inland waters held in February. Its companion, the committee on research on food resources of coastal waters, has considered ways and means of expediting research designed to increase the yield of food, animal feed and substances of biological value from organisms inhabiting coastal waters. The committee will attempt to aid investigators with research facilities, especially at marine stations and at universities near the coast, in defining problems that need to be done, and to coordinate work in different institutions. Government agencies, both State and Federal, which are short of manpower are invited to make use of the committee's coordinating function to farm out problems that might suitably be turned over to qualified investigators with free time and facilities.

The committee on the training of research workers in agriculture was authorized by the Research Council in June 1943 as a result of recommendations by the division's committee on fellowships, the fellowship board in the natural sciences, members of the division, and correspondence with leaders in scientific agriculture.

The committee on forestry, which is a joint committee with the Society of American Foresters, is interested in all fields of forestry, with first consideration given to research that may contribute to current war efforts. Its task is to emphasize lines of endeavor not fully covered at the present time and to aid existing agencies in the conduct of important supplemental projects. A grant of $2,500 from the General Education Board makes possible field trips by the chairman for regional conferences on local problems, as well as personal discussions with representatives of Federal, State, and institutional agencies now engaged in research in forestry, and with members of the committee.

Dr. T. F. Anderson, former RCA fellow and secretary of the committee on the applications of the electron microscope, has completed studies during the year, in collaboration with specialists among the committee members, on connective tissue fibrils and sections of striated muscle. Work has been published in the fields of viruses, bacteriophage, bacterial morphology, colloids, and entomology.

Studies carried on during the year under grants from the committee on human heredity dealt with the relative roles of heredity and environment in the determination of the components of intelligence, the Rh factor, the inheritance of cerebral dysrythmia, the congenital absence of human teeth, and the inheritance of various types of mastoids and sinuses. The chairman of the committee continued his lectures on medical genetics at various medical and biological centers throughout the country.

The committee on wartime modification of the curriculum in biology, established at the request of the United States Office of Education, reported to that Office, after a meeting and extensive correspondence with representatives of the biological profession, that it is unwise to introduce marked changes in our present courses in the biological sciences in order to make them serviceable to war conditions. The committee recommended that the introductory courses cater to the student who does not intend to go further with these sciences; and that the colleges give more attention to training teachers in biology for the secondary schools.

The Tropical Plant Research Foundation, established through the activities of a committee of the division, was a potent force for the much needed development of tropical biology in the 1920's. Under the able leadership of Dr. W. A. Orton, it carried through and published a number of valuable researches in the American tropics. The death of Dr. Orton and the onset of the depression crippled it so severely that it has never been able to resume its former usefulness. The trustees voted on May 21 to discontinue the foundation. The balance of their funds has been offered to the division, with the hope that it may be used to further the development of tropical biology. The library of the foundation has been given to the new Inter-American Institute of Agricultural Sciences in Costa Rica. It is marked with a bronze tablet commemorating the services of William A. Orton to tropical agriculture.

At the request of the Wildlife Society, approved by the executive committee of the division, the war committee of the Wildlife Society was made a joint committee of the division and the society.

DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

Leonard Carmichael, chairman; F. M. Setzler, vice chairman

The anthropologists and psychologists of the country as organized in the division of anthropology and psychology have given during the past year most generously of their time, energies, and intellectual resources in an attempt to deal effectively with the many war problems with which they have been confronted, most of which have assumed the form of actual requests for assistance and advice from the services and from governmental agencies working in these areas.

Early this spring a committee on war service of anthropologists was formed in the division for the purpose of preparing a report on anthropology during the war and after, in order to acquaint anthropologists outside of Washington with the many diversified activities now being engaged in by people of that profession, and to orientate universities with regard to various problems and projects which might be undertaken. This report, which is enlightening, informative, and most important, has been mimeographed and may be obtained from the division office upon request.

The committee on the anthropology of Oceania, and the committee on African anthropology have published a series of confidential personnel lists on each of these regions, each installment containing names of individuals with experience in the region, together with pertinent information regarding each individual. These have been distributed to authorized persons, upon request, by the Ethnogeographic Board and have apparently proved to be of great value to these governmental agencies. Other projects, either completed or in progress in the fields covered by these committees, include a special study of western Sumatra and the islands off that coast; a directory of organizations in America concerned with Oceania; a list of anthropologists having administrative experience; the formation of a subcommittee concerned with native government in Oceania; the preparation of a series of strategic bulletins on Oceania; a list of native Africans living in the United States; a bibliography of north Africa, which, although still in preparation, is constantly being utilized by the services; a series of maps with tribal index; and a compilation of native names of diseases in Africa. The Ethnogeographic Board has been of invaluable assistance in the distribution of materials provided by these two committees.

The committee on food habits, an advisory research committee complementing the food and nutrition board administered by the division of biology and agriculture, now operates with the Nutrition and Food Conservation Branch of the Food Distribution Administration of the United States Department of Agriculture. This committee, under the able direction of its chairman, Dr. Carl E. Guthe, and its executive secretary, Dr. Margaret Mead, has continued to conduct investigations in various parts of the country on nutrition and food habits, and to issue reports on these studies. The committee has been actively engaged in compilations, such as attitude sampling, confidential reports, and dietary patterns of minority groups. A series of conferences has been held throughout the year to bring together local groups in various parts of the country.

The Committee on Child Development under the chairmanship of Dr. R. S. Woodworth, of Columbia University, held a conference on war and post-war child services and research in Chicago and Washington on March 19 and 20, 1943. The deliberations of the conference were focused around plans for work which might be undertaken with a minimum of financial assistance, and committees were formed to initiate plans for (1) child accounting, a systematic accounting of children which would show the number and location of children by different age groups, e. g. in homes, schools, institutions, industries, stores, and other jobs; the losses, wastage, maladjustments, problems, and difficulties of such children, and the various agencies engaged in child care, education, welfare, shelter, health work, recreation, etc.; (2) minimal research requirements during the war and reconstruction period in the United States and abroad; (3) research problems for intensive investigation.

The Society for Research in Child Development, with offices in the National Research Council, has continued the publication of Child Development Abstracts and Bibliography, a bimonthly journal, now in its eighteenth year; Child Development, a quarterly journal, in its fifteenth year, and Monographs of the Society, in its ninth year. Receipts from membership dues, journal subscriptions, reprints, and monograph sales provide a fund by means of which the publication program may be continued.

The committee on classification of military personnel advisory to The Adjutant General's Office has continued its important and effective work under the chairmanship of Dr. Walter V. Bingham. During the year it has dealt with such problems as preinduction screening, the sorting of newly inducted troops, and the selection of officers with leadership ability. In an attempt to solve another problem with which the committee has been faced, an advisory board on mechanical and technical personnel has recently been organized, consisting of five members. This board will explore new means of selecting men who have an aptitude for and may be trained in mechanical occupations of various kinds.

Through its contacts with the armed services and governmental agencies during the past year the emergency committee in psychology, under the chairmanship of Maj. Karl M. Dallenbach, has continued to formulate policies, plan, and advise. Through the activities of its various subcommittees and special committees many extremely important ideas have been brought to the attention of the committee for transmittal to the armed services and appropriate branches of the Government. These include the improvement of training procedures in the learning of the International Morse Code; the training of illiterate soldiers; the detection of mental defectives in the Army specialized training and induction station testing programs; the advancement of the work of women psychologists in connection with the war; the advancement of plans for psychological readjustment in the post-war period; the addition of psychology to the curriculum of the Army specialized training program, and the training of 800 men per year in personnel psychology; and suggestions as to deferment policy for psychologists. Other projects of the committee have included the publication of Psychology for the Fighting Man, under the editorship of Dr. E. G. Boring, of Harvard University; the formation of a subcommittee on problems of leadership; the formation of a subcommittee on survey and planning, which has acted as an overall planning and advisory group and at whose suggestion the Intersociety Constitutional Convention of Psychologists was held; the listing of activities of psychologists and of translators; and the routing of various research projects to universities.

In February 1943 the Office of Psychological Personnel, under the direction of Dr. Steuart Henderson Britt, began its second year of activity, functioning as a clearinghouse of information through which governmental and military agencies have been able to obtain the names and qualifications of individuals eligible for appointment, and as an advisory agency for those desiring to be of help in the war effort. The office has been supported by the National Research Council, the American Psychological Association, the American Association for

Applied Psychology, the Society for the Psychological Study of Social Issues, and the Society of Experimental Psychologists. Following Dr. Britt's resignation on June 1, 1943, Dr. Donald G. Marquis, of Yale University, accepted the directorship of the office.

The committee on Latin-American psychology, under the chairmanship of Dr. J. G. Beebe-Center, of Harvard University, and the committee on Latin-American anthropology, of which Dr. Wendell C. Bennett, of Yale University, is chairman, have cooperated closely with the joint committee on Latin-American studies. A series of articles on psychology in various South American countries is appearing in psychological journals. Exchanges of periodicals with Latin America have been arranged in the case of certain of our psychological journals, and reviews of Latin-American psychology books have appeared in journals in this country.

The committee on problems of neurotic behavior, under the chairmanship of Dr. Walter R. Miles, of Yale University, has continued the publication of the journal Psychosomatic Medicine, and its monograph supplements. One monograph, the Sex Cycle in Women, constituting the first part of volume III, has been published during the year. In December 1942 the American Society for Research in Psychosomatic Problems was formed, subscription to Psychosomatic Medicine being a part of the membership dues. The subcommittee on personality inventory has completed its work and has been discontinued.

The committee on selection and training of aircraft pilots, under the chairmanship of Dr. Morris S. Viteles, of the University of Pennsylvania, has continued its activity during the year through financial support from the Civil Aeronautics Administration. The emphasis of the committee has turned from research to the application of methods and instruments developed by the committee. Among interesting aspects of the work of the committee may be mentioned the following: The C.A.A.-National Testing Service, which was designed for uniform administration and scoring of tests used throughout the country for the screening of candidates for training in the Army phase of the civilian pilot training program; the development of "Patter" and "Fundamentals of Basic Flight Maneuvers," which have been utilized in the war training service program and by the Navy; the preparation of a textbook on aviation psychology under the editorship of Dr. Norman L. Munn, of Vanderbilt University; the publication of a popular article on How to Prevent Airsickness, a development of investigations by Dr. G. R. Wendt, of Wesleyan University; a training institute for pilot instructors, instituted at the request of the war training service at the University of Minnesota, April 1–10, 1943; the continued publication of reports of research sponsored by the committee since its organization; and the development of certain recording instruments.

There has developed in the division during the past year another committee dealing with selection and training problems—the committee on service personnel—selection and training, of which Dr. John M. Stalnaker, of Princeton University, is chairman, and Dr. Charles W. Bray, executive secretary. This committee was set up at the request of the Office of Scientific Research and Development, for advisory and research supervisory services to the National Defense Research Committee in the field of selection, classification, and training of service personnel, and its activities are supported under a contract with that office. It is also called upon for advice from time to time by branches of the armed services.

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ANNUAL REPORT OF THE TREASURER

July 1, 1942 to June 30, 1943

To the President of the National Academy of Sciences:

As treasurer of the National Academy of Sciences and of the National Research Council, I have the honor to submit the following report for the year from July 1, 1942, to June 30, 1943. The report is divided into two principal sections of which the first is devoted to the financial transactions of the Academy and the second section is concerned with the accounts of the National Research Council.

NATIONAL ACADEMY OF SCIENCES

The Bank of New York, under a contract dated June 29, 1933, has continued to serve as custodian of securities of the Academy during the past year.

Mr. Horace S. Ford has supervised the investment portfolio of the Academy for the year ending June 30, 1943, under the general direction of the finance committee and its special advisers.

On June 30, 1943, the investments of the Academy and of the Research Council were classified as follows:

Schedule C	Book value		
	Held by Academy	Held by Research Council	Total held
Bonds of railroads	$636, 426. 63	$58, 547. 67	$694, 974. 30
Bonds of public utility corporations	232, 787. 50		232, 787. 50
Bonds of industrial corporations	233, 978. 25	1, 920. 00	235, 898. 25
Bonds of United States Government	137, 500. 00		137, 500. 00
Bonds of foreign governments	27, 475. 00	14, 108. 75	41, 583. 76
Common stocks	1, 217, 892. 12	30, 259. 63	1, 248, 151. 75
Preferred stocks	504, 065. 65	17, 502. 45	521, 568. 10
First mortgages on real estate	144, 430. 96	5, 094. 51	149, 525. 47
Real estate for investment	124, 900. 00	25, 000. 00	149, 900. 00
Total	3, 259, 456. 11	152, 433. 01	3, 411, 889. 12

The total income of the Academy from investments during the past year was $167,275.73; this represents an average yield of 5.13 percent on the book value $3,259,456.11, and of 4.97 percent on the market value, $3,367,845.65 as of June 30, 1943.

Miscellaneous disbursements totaled $274,395.07; payments on grants, medals, and honoraria from trust funds, $10,660.96; total disbursements for the year were $285,056.03.

The consolidated investment fund, made up of 14 trust funds, on June 30, 1943, stands at $242,213.43, an increase of $2,000 since the close of the previous year; of the total, $240,254.53 was invested, and

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$1,958.90 was uninvested. The fund is made up of the principal of the following trust funds:

	Book value
Agassiz fund	$50, 000. 00
Billings fund	23, 748. 88
John J. Carty Medal and Award	25, 000. 00
Draper fund	10, 000. 00
Elliot fund	8, 000. 00
Gibbs fund	5, 545. 50
Hartley fund	1, 200. 00
Joseph Henry fund (an increase of $2,000 during the year)	44, 163. 50
Marsh fund	$20, 000. 00
Murray fund	10, 000. 00
Nealley fund	19, 555. 55
Smith fund	10, 000. 00
Thompson fund	10, 000. 00
Walcott fund	5, 000. 00
Total principal	242, 213. 43

The following schedules in the order named constitute the whole report:

Schedule A—Balance sheet.
B—Receipts and disbursements.
C—Details of assets.
D—Details of liabilities.
E—Accounts with individual funds.
F—General fund.
G—Appropriations under custodian of buildings and grounds.
H—Description of trust funds.

SCHEDULE A

NATIONAL ACADEMY OF SCIENCES

Balance sheet, June 30, 1943

ASSETS

Investments (schedule C)		$3, 259, 456. 11
Bank balance for investment, Bank of New York		6, 467. 35
Bank balance for general purposes, American Security & Trust Co		218, 302. 03
Advanced to National Academy of Sciences, special		1, 999. 20
Property account (buildings and grounds at cost):		
Buildings	$1, 458, 480. 96	
Grounds	185, 764. 50	
		1, 644, 245. 46
Property account (equipment at cost)		15, 951. 67
Total assets		5, 146, 421. 82

LIABILITIES

Endowment and other funds (schedule D):		
Invested income	$34, 254. 90	
Uninvested income (debtor)	460, 243. 64	
Invested capital	3, 227, 160. 11	
Uninvested capital	685, 053. 32	
		3, 486, 224. 69
Capital invested in property		1, 644, 245. 46
Capital invested in equipment		15, 951. 67
Total liabilities		5, 146, 421. 82

SCHEDULE B

NATIONAL ACADEMY OF SCIENCES

Receipts and disbursements, July 1, 1942, to June 30, 1943

RECEIPTS

Academy Proceedings:			
Annual dues	$1,645.00		
Reprints and separates	44.90		
		$1,689.90	
Joint Proceedings:			
Subscriptions	1,799.73		
Reprints and separates	1,104.18		
National Research Council	2,500.00		
		5,403.91	
General fund:			
Annual dues	1,645.00		
Miscellaneous receipts	66.31		
		1,711.31	
Academy emergency grant:			
Carnegie Corporation of New York contribution	12,000.00		
Office for Emergency Management, reimbursement for overhead expenses	61,742.08		
National Research Council refunds	66,784.72		
		140,526.80	
Gould fund:			
A. L. Hughes, refund	200.00		
Adam G. Böving, refund	200.00		
		400.00	
Contingent fund, maintenance of building:			
Food and Nutrition Board, reimbursement	203.86		
War Department, reimbursement	24.25		
Claim for losses by fire	256.95		
		485.06	
Special administrative funds: Reimbursement from Government for overhead		236.95	
Various appropriations: For Victory tax withheld		678.21	
Academy emergency grant, Academy Government projects: Reimbursements:			
Treasury Department	$9.50		
War Department—special committee	7,712.56		
Office for Emergency Management:			
Metals and minerals	6,374.47		
Miscellaneous materials	326.84		
Reimbursement for overhead	3,204.24		
Medicine and surgery	1,482.98		
National Research Council:			
Metals and minerals	1,241.48		
War Metallurgy Committee (WPB)	228.41		
Office of Psychological Personnel	15.65		
General maintenance, division of chemistry and chemical technology, 1943	13.55		
E. B. Fred, refund	456.51		
		21,066.19	
Total income from investments		167,275.73	
Scientific publication fund: Sales of Oceanography		13.50	
National Science Fund—contributions		10,887.00	
Special insurance fund—refunds		273.75	
Total receipts			$350,648.31

Receipts and disbursements, July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS

General fund:			
Treasurer's office:			
Auditor's fees	$250. 00		
Miscellaneous expenses (not including $94.49 fees to financial advisers)	109. 54		
		$359. 54	
Home secretary's office:			
Executive secretary's salary	600. 00		
Stationery and miscellaneous office expenses	396. 94		
Reference books	47. 90		
Printing, multigraphing, and engraving	247. 52		
Express and telegrams	122. 96		
		1, 415. 32	
Annual meeting	481. 95		
Autumn meeting	264. 19		
Election of members	1, 307. 68		
Memoirs, editorial	108. 50		
Printing of Biographical Memoirs	1, 451. 00		
Current publications, preparation for distribution	24. 67		
Postage, regular	300. 00		
Contingent fund	182. 47		
Library binding	32. 75		
Expenses of members attending executive committee of council of Academy	39. 65		
		4, 192. 86	
			$5, 967. 72
Appropriations for maintenance of buildings and grounds, under custodian of buildings and grounds:			
Salaries, office of custodian of buildings and grounds	7, 862. 50		
Salaries, employees, building	26, 202. 98		
Steam heating	2, 215. 47		
Electricity	2, 262. 53		
Gas	7. 50		
Contingent fund, maintenance of building	6, 175. 56		
Maintenance of exhibits	1. 39		
Insurance, 1943–47	309. 09		
Special administrative funds	3, 073. 76		
Victory tax withheld account:			
For payment to Collector of Internal Revenue, Baltimore, Md., for Victory tax withheld	340. 72		
			48, 451. 50
Academy emergency grant:			
National Research Council:			
Advances	60, 800. 00		
Reimbursement from Government on account of overhead	20, 000. 00		
			(80, 800. 00)
Fees to financial advisers			4, 218. 26
To National Research Council for general maintenance expenses			(64, 805. 54)
Advanced for purchase of bonds			22, 000. 00

Receipts and disbursements, July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS—continued

Academy emergency grant, Academy Government projects:			
War metallurgy committee (WPB)		$228.41	
Construction costs		2,757.12	
ABC committee		293.57	
Espionage Act		16.70	
U. S. Geological Survey		503.49	
Extra guards, cleaners, and laborers		6,422.57	
W. B. C. committee		5,472.94	
Medicine and surgery		515.67	
Metals and minerals		4,602.81	
Other committee expenses		508.92	
			$21,322.20
Special insurance fund: Premiums			7,777.50
Joint Proceedings:			
Salary, managing editor	$750.00		
Printing and distributing	5,864.26		
Expenses:			
Boston office	450.00		
Washington office	170.67		
			7,234.93
National Science Fund:			
Purdue Research Foundation, fellowship	750.00		
Charles B. Huggins, honorarium	2,000.00		
Incidental expenses	164.88		
			2,914.88
Expenses—fund for research: Salaries, rent, and other committee expenses			4,521.74
Building site fund: Widening of 21st St. NW			1,278.48
Carnegie endowment fund: Taxes, fire and liability insurance, repairs, etc., on real estate			3,103.12
Payments from trust and other funds:			
Bache fund:			
F. F. Nord, grant	$500.00		
Thomas Barbour, grant	500.00		
H. M. Raup, grant	500.00		
		$1,500.00	
John J. Carty Medal and Award:			
E. G. Conklin, honorarium	4,000.00		
Medals and medal boxes	252.79		
Engrossing and mimeographing	40.63		
		4,293.42	
Draper fund: Medals and medal boxes		344.39	
Elliot fund:			
Robert Cushman Murphy, honorarium	$200.00		
Edwin H. Colbert, honorarium	200.00		
Engrossing	50.00		
Medals and medal boxes	525.00		
		975.00	
Gould fund:			
Dirk Brouwer, grant	1,200.00		
S. A. Mitchell, grant	500.00		
		1,700.00	
Hartley fund: Medals and medal boxes		104.86	
Marsh fund:			
Edward P. Mumford, grant	$400.00		
Lloyd R. Watson, grant	200.00		
E. R. Eller, grant	490.00		
		1,090.00	

Receipts and disbursements, July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS—continued

Murray fund:			
C. O'D. Iselin, honorarium	$300.00		
Medals and medal boxes	335.25		
		$635.25	
Thompson fund: Medal boxes		18.04	
Total payments from trust and other funds			$10,660.96
Total disbursements as shown above			285,056.83
Less amount under reimbursed to National Academy of Sciences special by voucher No. 8526, June 30, 1943			.80
Amount of disbursements as shown by cash book			285,056.03

BALANCE FOR CURRENT PURPOSES

Receipts for the year ending June 30, 1943	$350,648.31
Disbursements for the year ending June 30, 1943	285,056.03
Excess of receipts over disbursements	65,592.28
Balance in bank July 1, 1942	152,709.75
Balance in bank June 30, 1943: American Security & Trust Co	218,302.03

SCHEDULE C

Statement of assets and liabilities, June 30, 1943

ASSETS

[Securities purchased during the fiscal year 1942-43 are indicated thus (*)]

Securities	Face value	Book value	Market value June 30, 1943
RAILROAD BONDS			
Baltimore & Ohio A 5's, 1995	$35,000.00	$28,737.75	$14,787.50
Baltimore & Ohio D 5's, 2000	10,000.00	9,550.00	4,225.00
Baltimore & Ohio, Pittsburgh, Lake Erie & West Virginia* 4's, 1951	50,000.00	27,638.75	32,500.00
Boston & Maine* 4's, 1960	10,000.00	7,375.00	8,500.00
Central Pacific 5's, 1960	45,000.00	39,772.50	30,487.50
Chicago, Rock Island & Pacific* 4's, 1934	40,000.00	7,412.50	13,200.00
Cleveland, Cincinnati, Chicago & St. Louis 4½'s, 1977	40,000.00	38,380.00	22,850.00
Delaware & Hudson* 4's, 1943	40,000.00	28,512.50	27,900.00
Great Northern D 4½'s, 1976	25,000.00	25,218.75	24,781.25
Illinois Central 4's, 1955	40,000.00	34,800.00	23,700.00
Kansas City, Fort Scott & Memphis 4's, 1936	35,000.00	18,507.25	27,825.00
Lehigh Valley* 4½'s, 1950	50,000.00	30,043.75	35,500.00
Louisville & Nashville D 4's, 2003	20,000.00	20,850.00	19,400.00
Nashville, Chattanooga & St. Louis* A 4's, 1978	45,000.00	31,443.75	36,662.50
New Orleans Terminal A 4's, 1953	10,000.00	9,187.50	9,525.00
New Orleans, Texas & Mexico A 5½'s, 1954	15,000.00	15,529.13	10,912.50
New York Central & Hudson River Michigan Central Collateral* 3½'s, 1998	55,000.00	27,350.00	34,787.50
New York, Chicago & St. Louis C 4½'s, 1978	35,000.00	31,637.50	36,437.50
New York, Lackawanna & Western* A 4's, 1973	50,000.00	30,300.00	36,500.00
Norfolk & Southern* A 4½'s, 1998	17,000.00	14,030.00	13,812.50
Pennsylvania C 3¾'s, 1970	20,000.00	20,475.00	19,600.00
Pennsylvania 4½'s, 1970	50,000.00	49,750.00	47,812.50
Pere Marquette C 4½'s, 1980	30,000.00	29,662.50	22,125.00
Pere Marquette A 5's, 1956	15,000.00	15,438.75	13,631.25
Southern Pacific, Oregon Lines A 4½'s, 1977	30,000.00	29,962.50	19,725.00
West Shore 4's, 2361	15,000.00	14,831.25	8,437.50
Total, railroad bonds	827,000.00	636,426.63	595,625.00
PUBLIC UTILITY BONDS			
Columbia Gas & Electric 5's, 1961	10,000.00	9,775.00	10,087.50
Gatineau Power* A ($40,000 purchased, 1942-43) 3¾'s, 1969	50,000.00	45,700.00	49,062.50
Illinois Power & Light C 5's, 1956	25,000.00	25,062.50	26,375.00
Penn Central Power & Light 4½'s, 1977	25,000.00	24,937.50	26,500.00
Puget Sound Power & Light* 4¼'s, 1972	30,000.00	31,275.00	31,875.00
Shawinigan Water & Power A 4½'s, 1967	50,000.00	45,312.50	52,250.00
Tide Water Power A 5's, 1979	50,000.00	50,725.00	49,750.00
Total, public utility bonds	240,000.00	232,787.50	245,900.00

Statement of assets and liabilities, June 30, 1943—Continued

ASSETS—continued

[Securities purchased during the fiscal year 1942–43 are indicated thus (*)]

Securities	Face value	Book value	Market value June 30, 1943
INDUSTRIAL BONDS			
Eastern Gas & Fuel 4's, 1956	$50,000.00	$44,360.00	$44,500.00
General Steel Castings* A ($15,000 purchased, 1942–43) 5½'s, 1949	50,000.00	48,820.00	51,000.00
Glen Alden Coal* ($10,000 purchased, 1942–43) 4's, 1965	60,000.00	53,242.50	58,200.00
United Drug Co.* ($35,000 purchased, 1942–43) 5's, 1953	50,000.00	47,632.00	51,437.50
United Stockyards* 4¼'s, 1951	40,000.00	39,923.75	40,700.00
Total, industrial bonds	250,000.00	233,978.25	245,837.50
U. S. GOVERNMENT BONDS			
United States of America Defense Savings, series G 2½'s, 1953	50,000.00	50,000.00	48,600.00
United States of America Defense Savings, series G 2½'s, 1954	50,000.00	50,000.00	48,600.00
United States of America Treasury 2½'s, 1972	37,500.00	37,500.00	37,898.44
Total, U. S. Government bonds	137,500.00	137,500.00	135,098.44
FOREIGN GOVERNMENT BONDS			
Argentine Republic 4's, 1972	30,000.00	27,475.00	24,375.00
Total, foreign government bonds	30,000.00	27,475.00	24,375.00
Total, bonds	1,484,500.00	1,268,167.38	1,246,835.94

	Number of shares	Book value	Market value, June 30, 1943
Common stocks:			
Anaconda Copper Mining Co.* (500 purchased 1942–43)	1,000	$29,112.05	$27,625.00
American Can	500	41,140.74	45,000.00
American Tobacco*	400	24,373.17	24,400.00
Atchison, Topeka & Santa Fe Ry.*	700	32,380.51	40,162.50
Bank of New York*	40	14,480.00	14,560.00
Bankers Trust	500	26,125.00	24,312.50
Boston Edison*	1,000	24,408.57	30,125.00
Central Aguirre Associates* (200 purchased 1942–43)	1,200	21,361.94	25,950.00
Chase National Bank	500	15,666.00	19,187.50
Chemical Bank & Trust* (300 purchased 1942–43)	700	33,304.50	32,462.50
Chrysler	800	47,121.49	67,500.00
Cluett Peabody* (300 purchased August 1942)	600	21,235.25	22,275.00
Commercial Credit* (500 purchased August 1942)	1,000	21,578.51	40,500.00
Commercial Investment Trust* (100 purchased August 1942)	1,000	57,208.48	42,875.00
Commonwealth Edison* (500 purchased 1942–43)	1,000	20,876.77	24,875.00
Connecticut Light & Power Co.*	1,000	29,910.39	36,250.00
Consolidated Edison of New York* (400 purchased 1942–43)	1,000	29,125.36	22,250.00
Continental Can	200	8,800.90	7,175.00
Continental Illinois National Bank & Trust* (100 purchased 1942–43)	300	26,625.87	29,625.00
Corn Products Refining	500	39,733.82	28,625.00
Detroit Edison*	1,500	28,370.32	30,000.00
Draper Corporation*	500	33,007.17	34,375.00
First National Bank of Boston* (400 purchased 1942–43)	800	37,121.26	37,400.00
General Motors	500	19,753.18	27,812.50
Guaranty Trust of New York* (50 purchased 1942–43)	100	27,982.50	30,050.00
Hazel-Atlas Glass	500	53,180.30	52,125.00
Inland Steel	500	38,152.00	36,000.00
International Nickel Co. of Canada Ltd.*	1,000	33,834.06	32,750.00
Kennecott Copper* (400 purchased 1942–43)	1,000	35,129.73	31,625.00
Lehman Corporation	500	11,500.00	15,000.00
Liquid Carbonic* (1,000 purchased 1942–43)	2,000	29,703.56	41,250.00
Massachusetts Bonding and Insurance*	300	18,932.50	22,650.00
National City Bank of New York	700	18,915.00	25,200.00
Phillips Petroleum	1,000	45,735.00	48,000.00
Phillip Morris & Co., Ltd. Inc.*	300	27,105.00	28,887.50
Procter & Gamble* (300 purchased 1942–43)	500	24,385.66	27,437.50
St. Joseph Lead* (400 purchased 1942–43)	1,000	33,642.74	34,000.00
Standard Oil Co. of Indiana	600	18,946.00	21,450.00
Standard Oil Co. of New Jersey	1,000	40,769.79	58,125.00
Standard Oil Co. of Ohio	300	12,613.50	13,050.00
Tybor Stores*	1,000	500.00	425.00
United Fruit	500	36,250.00	37,937.50
United Shoe Machinery	500	27,793.53	35,562.50
Total common stocks	30,540	1,217,892.12	1,324,847.50

Statement of assets and liabilities, June 30, 1943—Continued

ASSETS—continued

[Securities purchased during the fiscal year 1942–43 are indicated thus (*)]

	Number of shares	Book value	Market value, June 30, 1943
Preferred stocks:			
Atchison, Topeka & Santa Fe Ry.* (100 purchased 1942-43)	600	$40, 538. 41	$51, 000. 00
Crane*	450	47, 500. 00	47, 643. 75
Consolidated Edison of New York	500	47, 586. 75	51, 062. 50
Goodyear Tire & Rubber*	500	50, 025. 00	51, 250. 00
North American* (300 purchased 1942–43)	800	44, 553. 39	44, 400. 00
Public Service of New Jersey	800	80, 807. 00	70, 200. 00
Pure Oil*	500	51, 625. 00	52, 000. 00
Tide Water Associated Oil* (100 purchased 1942–43)	500	43, 856. 13	50, 000. 00
Union Pacific R. R.* (200 purchased 1942–43)	600	48, 884. 97	53, 025. 00
United Aircraft* (100 purchased 1942–43)	500	48, 689. 00	56, 250. 00
Total preferred stocks	5, 750	504, 065. 65	526, 831. 25
Total common and preferred stocks	36, 290	1, 721, 957. 77	1, 851, 678. 75

	Face value	Book value	Market value, June 30, 1943
Mortgage notes (secured by first mortgage on real estate)	$144, 430. 96	$144, 430. 96	[1] $144, 430. 96
Real estate	124, 900. 00	124, 900. 00	[1] 124, 900. 00
Total real estate and mortgages	269, 330. 96	269, 330. 96	269, 330. 96
Total securities, including common and preferred stocks		3, 259, 456. 11	3, 367, 845. 65

[1] No market available.

SCHEDULE D

Liabilities

	Invested income	Uninvested income	Invested capital	Uninvested capital
General fund	$11, 599. 40	$1, 008. 06		
Agassiz fund			$50, 000. 00	
Nealley fund			19, 555. 55	
Academy emergency grant		54, 547. 28		
Academy emergency grant, Academy Government projects		6, 589. 09		
Bache fund		5, 160. 62	59, 751. 90	$248. 10
Billings fund			23, 748. 88	
Building site fund	8, 009. 40	480. 08		
Carnegie Corporation, special		7, 737. 55		
Carnegie endowment fund		128, 733. 04	2, 866, 187. 56	683, 812. 44
John J. Carty Medal and Award		981. 21	25, 000. 00	
Comstock fund	960. 00	5, 281. 38	14, 333. 75	666. 25
Consolidated fund		1, 391. 10		
Draper fund		962. 68	10, 000. 00	
Elliot fund		2, 766. 40	8, 000. 00	
Expenses—fund for research		2, 230. 53		
Gibbs fund		3, 875. 30	5, 545. 50	
Gould fund	9, 747. 65	3, 150. 95	19, 995. 97	4. 03
Hale lectureship		385. 55		
Hartley fund		447. 40	1, 200. 00	
Investment reserve fund (schedule E)		[1] 759, 310. 76		
Joseph Henry fund		2, 406. 82	44, 163. 50	
Marsh fund		526. 48	20, 000. 00	
Murray fund		790. 87	10, 000. 00	
National Parks problems		80. 79		
National Science Fund		8, 527. 12		
Academy Proceedings		5, 967. 07		
Joint Proceedings		9, 073. 18		
Emergency fund Proceedings		3, 327. 79		
Scientific publication fund		1, 761. 06		
Smith fund	3, 938. 45	5, 117. 25	10, 000. 00	
Special insurance fund		12, 485. 00		
Thompson fund		4, 265. 25	10, 000. 00	
Walcott fund		843. 80	5, 000. 00	
Watson fund		6, 289. 39	24, 677. 50	322. 50
Appropriations under custodian of buildings and grounds		11, 877. 03		
Total, schedule A	34, 254. 90	[1] 460, 243. 64	3, 227, 160. 11	685, 053. 32
Consolidated fund		1, 391. 10	240, 254. 53	1, 958. 90

[1] Dr.

SCHEDULE E

Accounts with individual funds, July 1, 1942 to June 30, 1943

	General fund		Agassiz fund	
	Income	Capital	Income	Capital
Balance, July 1, 1942:				
Cash	$1,082.23			
Invested	11,984.40			$50,000.00
Receipts:				
Income from investments:				
Agassiz fund	3,300.00			
Nealley fund	948.13			
Annual dues from members	1,645.00			
Miscellaneous receipts	66.31			
Total	19,026.07			50,000.00
Disbursements:				
General expenses (B)	5,967.72			
Transfer to investment reserve fund	212.41			
Fees to financial advisers	94.49			
Accrued interest on bonds bought	138.67			
Postage and insurance	5.32			
Balance June 30, 1943:				
Cash	1,008.06			
Invested	11,599.40			50,000.00
Total	19,026.07			50,000.00

	Academy emergency grant		Academy emergency grant, Academy Government projects	
	Income	Capital	Income	Capital
Balance July 1, 1942: Cash	$13,097.98		$6,255.10	
Receipts:				
Carnegie Corporation of New York	12,000.00			
National Research Council—refunds	66,784.72			
Reimbursements by Government for overhead expenses	61,742.08			
Transfer from Academy emergency grant, Academy Government projects	5,000.00			
Transfer from Academy emergency grant			5,590.00	
Treasury Department			9.50	
War Department: Special committee			7,712.56	
Office for Emergency Management:				
Metals and minerals			6,374.47	
Miscellaneous materials			326.84	
Reimbursement for overhead			3,204.24	
Medicine and surgery			1,482.98	
National Research Council:				
Metals and minerals			1,241.48	
War Metallurgy Committee (WPB)			228.41	
Office of Psychological Personnel			15.65	
General maintenance, Division of Chemistry and Chemical Technology, 1943			13.55	
E. B. Fred, refund			456.51	
Total	158,624.78		32,911.29	
Disbursements:				
Transfer to special insurance fund	17,687.50			
Transfer to Academy emergency grant, Academy Government projects	5,590.00			
National Research Council	80,800.00			
Transfer to Academy emergency grant			5,000.00	
Office for Emergency Management:				
Metals and minerals			4,602.81	
W. B. C. Committee			5,472.94	
Extra guards, laborers, and cleaners			6,422.57	
War Metallurgy Committee (WPB)			228.41	
Construction costs			2,757.12	
ABC Committee			293.57	
Espionage Act			16.70	
Medicine and surgery			515.67	
U. S. Geological Survey			503.49	
Other committee expenses			508.92	
Balance June 30, 1943: Cash	54,547.28		6,589.09	
Total	158,624.78		32,911.29	

Accounts with individual funds, July 1, 1942 to June 30, 1943—Continued

	Bache fund		Billings fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$3,930.98	$263.10		
Invested		59,736.90		$23,748.88
Receipts: Income from investments	3,312.80		$1,151.96	
Total	7,243.78	60,000.00	1,151.96	23,748.88
Disbursements:				
Grants	1,500.00			
Accrued interest on bonds bought	348.34			
Transfer to investment reserve fund	165.64		57.60	
Transfer to fees to financial advisers	69.18		27.42	
Transfer to Academy Proceedings			1,066.94	
Balance June 30, 1943:				
Cash	5,160.62	248.10		
Invested		59,751.90		23,748.88
Total	7,243.78	60,000.00	1,151.96	23,748.88

	Building site fund		Carnegie Corporation special	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$1,401.04		$4,737.55	
Invested	8,009.40			
Receipts:				
Income from investments	386.10			
Transfer from Carnegie Corporation, special, reimbursable			3,000.00	
Total	9,796.54		7,737.55	
Disbursements:				
Assessment for widening 21st St. NW	1,278.48			
Transfer to investment reserve fund	19.30			
Transfer to fees to financial advisers	9.28			
Balance June 30, 1943:				
Cash	480.08		7,737.55	
Invested	8,009.40			
Total	9,796.54		7,737.55	

	Carnegie Corporation special, reimbursable		Carnegie endowment fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$3,000.00		$114,632.79	$459,546.53
Invested				3,090,453.47
Receipts:				
Income from investments			147,385.20	
Transfer from Carnegie endowment fund income account, NAS., 1943			6,720.32	
Total	3,000.00		268,738.31	3,550,000.00
Disbursements:				
Accrued interest on bonds bought			2,956.90	
Taxes, insurance premiums, and commissions on real estate			3,103.12	
Transfer to Carnegie endowment fund income account, NAS., 1943			57,397.53	
Transfer to Carnegie endowment fund, income account, NRC., 1943			65,000.00	
Transfer to fees to financial advisers			3,585.94	
Transfer to investment reserve fund			7,338.08	
Transfer to other trust funds, adjustments			623.70	
Transfer to Carnegie Corporation, special	3,000.00			
Balance June 30, 1943:				
Cash			128,733.04	683,812.44
Invested				2,866,187.56
Total	3,000.00		268,738.31	3,550,000.00

Accounts with individual funds, July 1, 1942 to June 30, 1943—Continued

	John J. Carty Medal and Award		Comstock fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$4,150.73		$5,482.21	$337.50
Invested		$25,000.00	960.00	14,662.50
Receipts: Income from investments	1,213.69		770.60	
Total	5,364.42	25,000.00	7,212.81	15,000.00
Disbursements:				
E. G. Conklin, honorarium	4,000.00			
Medal and medal boxes	252.79			
Engrossing	25.00			
Mimeographing and postage	15.63			
Transfer to fees to financial advisers	29.11			
Transfer to investment reserve fund	60.68			
Accrued interest on bonds bought			80.40	
Loss on sale of securities			891.03	
Balance June 30, 1943:				
Cash	981.21		5,281.38	666.25
Invested		25,000.00	960.00	14,333.75
Total	5,364.42	25,000.00	7,212.81	15,000.00

	Consolidated fund		Draper fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$1,004.94	$268.72	$858.15	
Invested		239,944.71		$10,000.00
Receipts:				
Income from investments	12,435.90		484.54	
Transfer from Joseph Henry fund capital		2,000.00		
Total	13,440.84	242,213.43	1,342.69	10,000.00
Disbursements:				
Distribution of consolidated fund	11,647.74			
Accrued interest on bonds bought	402.00			
Medals and medal boxes			344.39	
Transfer to investment reserve fund			24.23	
Transfer to fees to financial advisers			11.39	
Balance June 30, 1943:				
Cash	1,391.10	1,958.90	962.68	
Invested		240,254.53		10,000.00
Total	13,440.84	242,213.43	1,342.69	10,000.00

	Elliot fund		Expenses—fund for research	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$3,382.19		$6,752.27	
Invested		$8,000.00		
Receipts: Income from investments	387.88			
Total	3,770.07	8,000.00	6,752.27	
Disbursements:				
Robert Cushman Murphy, honorarium	200.00			
Edwin H. Colbert, honorarium	200.00			
Medals and medal boxes	525.00			
Engrossing	50.00			
Salaries and all other expenses			4,521.74	
Transfer to investment reserve fund	19.39			
Transfer to fees to financial advisers	9.28			
Balance June 30, 1943:				
Cash	2,766.40		2,230.53	
Invested		8,000.00		
Total	3,770.07	8,000.00	6,752.27	

Accounts with individual funds, July 1, 1942 to June 30, 1943—Continued

	Fees to financial advisers		Gibbs fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash			$3,626.01	
Invested				$5,545.50
Receipts:				
Income from investments			269.07	
Transfers from various funds	$4,218.26			
Total	4,218.26		3,895.08	5,545.50
Disbursements:				
Fees to Horace S. Ford	4,218.26			
Transfer to investment reserve fund			13.45	
Transfer to fees to financial advisers			6.33	
Balance June 30, 1943:				
Cash			3,875.30	
Invested				5,545.50
Total	4,218.26		3,895.08	5,545.50

	Gould fund		Hale lectureship	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$3,603.77	$787.78	$385.55	
Invested	9,747.65	19,212.22		
Receipts: Income from investments	1,382.78			
Total	14,734.20	20,000.00	385.55	
Disbursements:				
Dirk Brouwer, grant	1,200.00			
S. A. Mitchell, grant	500.00			
Accrued interest on bonds bought	32.71			
Transfer to investment reserve fund	69.14			
Transfer to fees to financial advisers	33.75			
Balance June 30, 1943:				
Cash	3,150.95	4.03	385.55	
Invested	9,747.65	19,995.97		
Total	14,734.20	20,000.00	385.55	

	Hartley fund		Joseph Henry fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$498.20		$2,113.78	
Invested		$1,200.00		$42,163.50
Receipts:				
Income from investments	58.24		2,044.18	
Transfer from income to capital				2,000.00
Refunds on grants:				
Adam G. Böving			200.00	
A. L. Hughes			200.00	
Total	556.44	1,200.00	4,557.96	44,163.50
Disbursements:				
Medals and medal boxes	104.86			
Transfer from income to capital			2,000.00	
Transfer to investment reserve fund	2.91		102.21	
Transfer to fees to financial advisers	1.27		48.93	
Balance June 30, 1943:				
Cash	447.40		2,406.82	
Invested		1,200.00		44,163.50
Total	556.44	1,200.00	4,557.96	44,163.50

Accounts with individual funds, July 1, 1942 to June 30, 1943—Continued

	Investment reserve fund		Marsh fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash			$719.03	
Invested				$20,000.00
Receipts:				
Income from investments			969.10	
Profit on sale of securities	$66,034.08			
Transfers from various funds	8,285.85			
Overdraft June 30, 1943	759,310.76			
Total	833,630.69		1,688.13	20,000.00
Disbursements:				
Edward P. Mumford, grant			400.00	
Lloyd R. Watson, grant			200.00	
E. R. Eller, grant			490.00	
Transfer to investment reserve fund			48.45	
Transfer to fees to financial advisers			23.20	
Loss on sale of securities	300,392.81			
Overdraft July 1, 1942	533,237.88			
Balance June 30, 1943:				
Cash			526.48	
Invested				20,000.00
Total	833,630.69		1,688.13	20,000.00

	Murray fund		National Academy of Sciences, special	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$977.62			
Invested		$10,000.00		
Receipts:				
Income from investments	484.54			
Reimbursements			$103,384.40	
Due from National Research Council July 1, 1942			2,000.00	
Total	1,462.16	10,000.00	105,384.40	
Disbursements:				
C. O'D. Iselin, honorarium	300.00			
Medals and medal boxes	335.25			
Reimbursable expenditures			103,385.20	
Transfer to investment reserve fund	24.23			
Transfer to fees to financial advisers	11.81			
Due from National Research Council June 30, 1943			1,999.20	
Balance June 30, 1943:				
Cash	790.87			
Invested		10,000.00		
Total	1,462.16	10,000.00	105,384.40	

	National Parks problems		National Science Fund	
	Income	Capital	Income	Capital
Balance July 1, 1942: Cash	$80.79		$555.00	
Receipts: Contributions			10,887.00	
Total	80.79		11,442.00	
Disbursements:				
Purdue Research Foundation, fellowship			750.00	
Charles B. Huggins, honorarium			2,000.00	
Incidental expenses			164.88	
Balance June 30, 1943: Cash	80.79		8,527.12	
Total	80.79		11,442.00	

Accounts with individual funds, July 1, 1942 to June 30, 1943—Continued

	Nealley fund		Emergency fund Proceedings	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash			$3,327.79	
Invested		$19,555.55		
Receipts				
Total		19,555.55	3,327.79	
Disbursements				
Balance June 30, 1943:				
Cash			3,327.79	
Invested		19,555.55		
Total		19,555.55	3,327.79	

	Academy Proceedings		Joint Proceedings	
	Income	Capital	Income	Capital
Balance July 1, 1942: Cash	$5,710.23		$8,404.20	
Receipts:				
Annual dues	1,645.00			
Subscriptions			1,799.73	
Reprints and separates	44.90		1,104.18	
Transfer from Billings fund	1,066.94			
Contribution by National Research Council			2,500.00	
Transfer from Academy Proceedings representing contribution by National Academy of Sciences			2,500.00	
Total	8,467.07		16,308.11	
Disbursements:				
Salary of managing editor			750.00	
Printing and distributing			5,864.26	
Expenses:				
Boston office			450.00	
Washington office			170.67	
Transfer from Academy Proceedings representing contribution by National Academy of Sciences	2,500.00			
Balance June 30, 1943: Cash	5,967.07		9,073.18	
Total	8,467.07		16,308.11	

	Scientific publication fund		Smith fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$1,747.56		$4,487.77	
Invested			3,938.45	$10,000.00
Receipts:				
Income from investments			712.74	
Royalties on Oceanography	13.50			
Total	1,761.06		9,138.96	10,000.00
Disbursements:				
Accrued interest on bonds bought			31.17	
Transfer to investment reserve fund			35.64	
Transfer to fees to financial advisers			16.45	
Balance June 30, 1943:				
Cash	1,761.06		5,117.25	
Invested			3,938.45	10,000.00
Total	1,761.06		9,138.96	10,000.00

Accounts with individual funds, July 1, 1942 to June 30, 1943—Continued

	Special insurance fund		Thompson fund	
	Inome	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$2,301.25			
Invested			$3,834.37	$10,000.00
Receipts:				
Income from investments			484.54	
Transfer from Academy emergency grant	17,687.50			
Refunds	273.75			
Total	20,262.50		4,318.91	10,000.00
Disbursements:				
Medal boxes			18.04	
Special insurance premiums	7,777.50			
Transfer to investment reserve fund			24.23	
Transfer to fees to financial advisers			11.39	
Balance June 30, 1943:				
Cash	12,485.00		4,265.25	
Invested				10,000.00
Total	20,262.50		4,318.91	10,000.00

	Walcott fund		Watson fund	
	Income	Capital	Income	Capital
Balance July 1, 1942:				
Cash	$619.54		$5,267.66	$216.25
Invested		$5,000.00		24,783.75
Receipts: Income from investments	242.27		1,122.91	
Total	861.81	5,000.00	6,390.57	25,000.00
Disbursements:				
Accrued interest on bonds bought			16.35	
Transfer to investment reserve fund	12.11		56.15	
Transfer to fees to financial advisers	5.90		28.68	
Balance June 30, 1943:				
Cash	843.80		6,289.39	322.50
Invested		5,000.00		24,677.50
Total	861.81	5,000.00	6,390.57	25,000.00

SCHEDULE F

General fund, National Academy of Sciences, from July 1, 1942, to June 30, 1943

RECEIPTS

	Budget July 1, 1942, to June 30, 1943	Actually received July 1, 1942, to June 30, 1943	Budget balance June 30, 1943
Income from investments:			
Agassiz fund	$2,500.00	$3,300.00	[1] $800.00
Nealley fund	850.00	948.13	[1] 98.13
Annual dues from members	1,500.00	1,645.00	[1] 145.00
Total	4,850.00	5,893.13	[1] 1,043.13
Balance from previous year	10,000.00	13,066.63	[1] 3,066.63
Refunds and miscellaneous receipts		66.31	[1] 66.31
Total	14,850.00	19,026.07	[1] 4,176.07

[1] In excess of budget.

General fund, National Academy of Sciences, from July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS

	Budget July 1, 1942, to June 30, 1943	Actually disbursed July 1, 1942, to June 30, 1943	Budget balance June 30, 1943
Treasurer's office:			
Auditor's fees	$250.00	$250.00	
Bond of treasurer	25.00		$25.00
Miscellaneous expenses	450.00	209.35	240.65
Transfer to investment reserve fund	375.00	212.41	162.59
Total	1,100.00	671.76	428.24
Home secretary's office:			
Executive secretary's salary	600.00	600.00	
Stationery and miscellaneous office expenses	400.00	396.94	3.06
Reference books	50.00	47.90	2.10
Printing, multigraphing, and engraving	250.00	247.52	2.48
Express and telegrams	165.00	122.96	42.04
Total	1,465.00	1,415.32	49.68
Annual meeting	800.00	481.95	318.05
Autumn meeting	264.19	264.19	
Election of members	1,350.81	1,307.68	43.13
Memoirs, editorial	200.00	108.50	91.50
Printing of Biographical Memoirs	1,500.00	1,451.00	49.00
Current publications, preparation for distribution	150.00	24.67	125.33
Postage, regular	300.00	300.00	
Contingent fund	400.00	182.47	217.53
Library binding	200.00	32.75	167.25
Expenses of members attending executive committee of Council of Academy	300.00	39.65	260.35
Accrued interest on bonds bought		138.67	[1] 138.67
Total	5,465.00	4,331.53	1,133.47
Total for all	8,030.00	6,418.61	1,611.39
Surplus	6,820.00	12,607.46	
Grand total	14,850.00	19,026.07	

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[1] In excess of budget.

Schedule G

Appropriations under custodian of buildings and grounds, July 1, 1942, to June 30, 1943

RECEIPTS

	Budget July 1, 1942, to June 30, 1943	Actually received July 1, 1942, to June 30, 1943	Budget balance June 30, 1943
From Carnegie endowment fund	$57, 397. 53	$57, 397. 53	
Reimbursements		722. 01	[1] $722. 01
Total	57, 397. 53	58, 119. 54	[1] 722. 01

DISBURSEMENTS

		Budget July 1, 1942, to June 30, 1943	Actually disbursed July 1, 1942, to June 30, 1943	Budget balance June 30, 1943
Salaries, office of custodian of buildings and grounds		$8, 200. 00	$7, 862. 50	$337. 50
Salaries, employees, building		30, 655. 00	26, 202. 98	4, 452. 02
Steam heating		2, 500. 00	2, 215. 47	284. 53
Electricity		2, 600. 00	2, 262. 53	337. 47
Gas		20. 00	7. 50	12. 50
Contingent fund, maintenance of building		6, 485. 06	6, 175. 56	309. 50
Maintenance of exhibits		525. 00	1. 39	523. 61
Special administrative funds		3, 536. 95	3, 073. 76	463. 19
Total		54, 522. 01	47, 801. 69	6, 720. 32
Insurance, 1943–47:				
Balance July 1, 1942		1, 493. 78	309. 09	[2] 1, 184. 69
Appropriated July 1, 1942	$1, 493. 78			
Expended July 1, 1942, to June 30, 1943	309. 09			
Balance June 30, 1943	1, 184. 69			
Retirement fund: (Approximately 5 percent of appropriations for salaries):				
Balance July 1, 1942	8, 251. 10			
Appropriated July 1, 1942	2, 103. 75			
Total	10, 354. 85	10, 354. 85		[2] 10, 354. 85
Expended July 1, 1942, to June 30, 1943				
Balance June 30, 1943	10, 354. 85			
Total		66, 370. 64	48, 110. 78	18, 259. 86

[1] In excess of budget.

[2] Not reverted.

Note.—Reversions June 30, 1943, amounting to $6,720.32 have been credited to "Carnegie endowment fund, income account, N. A. S., 1943."

SCHEDULE H

TRUST FUNDS OF THE ACADEMY

The trust funds of the Academy, the income of which is administered for specific purposes, are enumerated below. The capital of certain funds has been increased beyond the original gift or bequest by the transfer of accumulated income at the request of the donors or by action of the Academy.

Bache fund: Bequest of Alexander Dallas Bache, a member of the Academy, 1870, to aid researches in physical and natural sciences	$60,000.00
Watson fund: Bequest of James C. Watson, a member of the Academy, 1874, for the promotion of astronomical science through the award of the Watson gold medal and grants of money in aid of research	25,000.00
Draper fund: Gift of Mrs. Henry Draper, 1883, in memory of her husband, a former member of the Academy, to found the Henry Draper medal, to be awarded for notable investigations in astronomical physics; the balance of income is applied to aid research in the same science	10,000.00
Smith fund: Gift of Mrs. J. Lawrence Smith, 1884, in memory of her husband, a former member of the Academy, to found the J. Lawrence Smith gold medal, to be awarded for important investigations of meteoric bodies and to assist, by grants of money, researches concerning such objects	10,000.00
Gibbs fund: Established by gift of Wolcott Gibbs, a member of the Academy, 1892, and increased by a bequest of the late Morris Loeb, 1914, for the promotion of researches in chemistry	5,545.50
Gould fund: Gift of Miss Alice Bache Gould, 1897, in memory of her father, a former member of the Academy, for the promotion of researches in astronomy	20,000.00
Comstock fund: Gift of Gen. Cyrus B. Comstock, a member of the Academy, 1907, to promote researches in electricity, magnetism, or radiant energy through the Comstock prize money, to be awarded once in 5 years for notable investigations: The fund has been increased from $12,406.02 to $15,000 by profit from sale of bonds and by transfer from income to capital	15,000.00
Marsh fund: Bequest of Othniel Charles Marsh, a member of the Academy, 1909, to promote original research in the natural sciences; to the original bequest of $10,000 the Academy has added interest received from the estate and has authorized the increase of the fund to $20,000 by annual additions from income	20,000.00
Murray fund: A gift from the late Sir John Murray, 1911, to found the Alexander Agassiz gold medal, in honor of a former member and president of the Academy, to be awarded for original contribution to the science of oceanography. To the original bequest of $6,000 the sum of $4,000 has been added by transfer from income to capital	10,000.00
Hartley fund: A gift from Mrs. Helen Hartley Jenkins, 1913-14, in memory of her father, Marcellus Hartley, to found the medal of the Academy awarded for eminence in the application of science to public welfare	1,200.00
Billings fund: Established by the bequest of Mrs. Mary Anna Palmer Draper (Mrs. Henry Draper) of $25,000, in 1915, to support the publication of the Proceedings of the Academy or for other purposes to be determined by the Academy, eight installments	23,748.88
Elliot Fund: Gift of Margaret Henderson Elliot, to found the Daniel Giraud Elliot gold medal and honorarium for the most meritorious work in zoology or paleontology published in each year	8,000.00
Thompson fund: Gift of Mrs. Mary Clark Thompson, 1919, the income thereof to be applied for a gold medal of appropriate design to be awarded annually by the Academy for the most important services to geology and paleontology, the medal to be known as the Mary Clark Thompson gold medal	10,000.00

Joseph Henry fund: The sum of $40,000 was contributed by Fairman Rogers, Joseph Patterson, George W. Childs, and others as an expression of their respect and esteem for Prof. Joseph Henry. This amount was deposited with the Pennsylvania Co. for Insurance of Lives and Granting Annuities in trust, with authorization to collect the income thereon and to pay over the same to Prof. Joseph Henry during his natural life, and after his death to his wife and daughters, and after the death of the last survivor to "deliver the said fund and the securities in which it shall then be invested to the National Academy of Sciences, to be thenceforward forever held in trust under the name and title of the 'Joseph Henry fund.'" The death of Miss Caroline Henry on November 10, 1920, has removed the last surviving heir of Joseph Henry to the income of the Joseph Henry fund. To assist meritorious investigators, especially in the direction of original research. Amount received by the Academy from the Pennsylvania Co. for Insurance of Lives and Granting Annuities, $39,739.57, to which was added the sum of $4,423.93 from income	$44, 163. 50
Walcott fund: Gift of Mrs. Mary Vaux Walcott, 1928, in honor of her husband, a former member and president of the Academy, the income to be used for the award of medals and honoraria to persons the results of whose published researches, explorations, and discoveries in pre-Cambrian or Cambrian life and history shall be judged most meritorious, the award to be made every 5 years, to be known as the Charles Doolittle Walcott fund	5, 000. 00
Carnegie endowment fund: By resolution voted Mar. 28, 1919, and amended several times since, the Carnegie Corporation of New York pledged $5,000,000 to the National Academy of Sciences for the purposes of the Academy and the National Research Council, of which $1,450,000 was reserved and paid for the erection of a building, and the remainder, $3,550,000, to be capitalized at such times as the corporation finds convenient in view of its other obligations, the amount remaining in the hands of the corporation to bear interest at the rate of 5 percent per annum; 7 installments completing capitalization	3, 550, 000. 00
John J. Carty Medal and Award for the advancement of science: Gift of American Telephone & Telegraph Co. Nov. 13, 1930, in recognition of the distinguished achievements of John J. Carty as a scientist and engineer, and his noteworthy contributions to the advancement of fundamental and applied science, and in appreciation of his great services for many years in developing the art of electrical communication, and as a lasting testimonial of the love and esteem in which he is held by his many thousand associates in the Bell system; the income thereof to be used for a gold medal and award, not oftener than once in 2 years, by vote of the National Academy of Sciences, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the National Academy of Sciences	25, 000. 00
In addition to the above-named funds, the Academy holds the following:	
Agassiz fund: Bequest of Alexander Agassiz, a member of the Academy, 1910, for the general uses of the Academy	50, 000. 00
Nealley fund: Bequest of George True Nealley, 1925, for the general purposes of the Academy, $20,896.01, less refund November 1926, $1,500, to a creditor of the estate; supplemented by additional sum from the estate March 1931, $159.54	19, 555. 55
Total	3, 912, 213. 43

NATIONAL RESEARCH COUNCIL

The disbursements of the National Research Council, under the authority of the National Academy of Sciences, during the year ended June 30, 1943, amounted to $1,437,657.46. Interest received on temporary investments amounted to $3,270.47.

The book value of securities held by the Council on June 30, 1943, was $152,433.01. Of the total held, $47,762.08 was the book value of the common and preferred stocks and $104,670.93 was the book value of bonds and real estate. The following table shows the current yield on the securities, according to the valuation used:

	Amount	Yield, percent
Book value	$152, 433. 01	4. 29
Market value	155, 924. 51	4. 20

During the fiscal year ended June 30, 1943, the activities of the National Research Council were supported by funds from various sources, as shown below:

(1) For general maintenance expenses of the National Research Council:		
From Carnegie endowment fund		$64, 805. 54
From central purposes fund of the National Research Council, Rockefeller Foundation, 1943		20, 000. 00
From Academy emergency grant:		
Advances for general maintenance	$11, 800	
For reimbursement from Government on account of overhead	20, 000	
		31, 800. 00
Total		116, 605. 54

The above contributions were the only ones received for the general support of the National Research Council. The Council has received in addition other funds contributed by a large number of organizations and individuals for the specific purposes indicated by the donors. The diversity of these research projects is indicated by the list of receipts following, the total of which is several times larger than the total for general maintenance. In order to finance special research projects for the Government pending reimbursement, National Academy of Sciences funds have been advanced as indicated by the starred items below:

(2) From the Rockefeller Foundation:	
For National Research fellowships in the natural sciences, year 1942 (RF 39103)	$27, 566. 78
For National Research fellowships in the natural sciences, year 1943 (RF 39103)	12, 000. 00
For fellowships in medicine, year 1942 (RF 40056)	14, 553. 68
For sex research fund, year 1943 (RF 41011)	46, 243. 80
For central purposes fund, year 1943 (RF 41111)	35, 000. 00
Total from the Rockefeller Foundation	135, 364. 26
(3) From John and Mary R. Markle Foundation:	
For committee on endocrinology, year 1943	34, 225. 99
For tropical medicine lectures	15, 000. 00
For tropical disease book fund	4, 000. 00
Total from Markle Foundation	53, 225. 99

(4) From the Carnegie Corporation of New York: For military medicine information service			$17,000.00
(5) From American Psychological Association, Inc.: For office of psychological personnel			9,350.00
(6) From the Josiah Macy, Jr., Foundation:			
For obesity and allergy in childhood		$3,700.00	
For committee on nutritional aspects of ageing		5,500.00	
			9,200.00
(7) From Public Roads Administration		20,000.00	
From sale of publications		3,679.44	
From dues from members		4,759.61	
From National Slag Association		100.00	
For the Highway Research Board			28,539.05
(8) From various organizations: For Industrial Research Institute dues from members			11,500.00
(9) From Civil Aeronautics Administration:			
For aircraft pilots, 1942		$13,700.00	
For aircraft pilots, 1943		112,500.00	
For CAA-national testing service		80,467.49	
			206,667.49
(10) From various organizations for work to be conducted in cooperation with National Bureau of Standards:			
For fire resistance of materials:			
The Widmayer Steel Co	$400.00		
Acoustical Treatments, Inc	100.00		
Keasbey & Mattison Co	400.00		
		900.00	
For thermal investigations: Cooperative Research Council		1,050.25	
For ignition research:			
Firestone Tire & Rubber Co	$3,000.00		
Continental Can Co	250.00		
		3,250.00	
For construction of high precision standards: W. & L. E. Gurley		1,327.00	
For investigation of high-strength reinforcement of concrete: American Isteg Steel Corporation		5,000.00	
			11,527.25
(11) From various organizations:			
For committee on sound control in vehicles: Office for Emergency Management			26,981.92
For committee on optical plastics: Office for Emergency Management			9.15
For Journal of Mathematical Tables: Subscriptions			435.25
For metallurgical advisory committee (O. S. R. D.):			
Office for Emergency Management		$128,969.76	
*National Academy of Sciences		7,500.00	
			136,469.76
For committee on concrete research:			
Office for Emergency Management		4,079.73	
Council of National Defense		20.06	
			4,099.79
For war metallurgy committee (WPB):			
Office for Emergency Management		76,387.36	
*National Academy of Sciences		5,000.00	
			81,387.36

(11) From various organizations—Continued.

For Highway Research Board moving expenses: National Academy of Sciences		$1, 100. 00
For Quartermaster Corps problems: *National Academy of Sciences		5, 000. 00
For committee on eutectic diagrams: Office for Emergency Management		134. 64
For N. T. M. project: Office for Emergency Management		752. 22
For special medical committees, Carnegie Corporation: Office for Emergency Management		541. 66
For committees on military medicine, revolving fund: Office for Emergency Management		121, 874. 87
For committee on materials in medicine and surgery:		
Office for Emergency Management	$17, 200. 03	
National Research Council	3, 000. 00	
		20, 200. 03
For medical food requirements: *National Academy of Sciences		$6, 000. 00
For National Live Stock and Meat Board fellowships: National Live Stock and Meat Board		19, 300. 00
For Food and Nutrition Board:		
Federal Security Agency	$46, 145. 92	
*National Academy of Sciences	6, 000. 00	
Nutrition Foundation fund	5, 000. 00	
		57, 145. 92
For Nutrition Foundation fund:		
The Nutrition Foundation, Inc	5, 000. 00	
Food and Nutrition Board	5, 000. 00	
		10, 000. 00
For committee on food composition:		
War Department	1, 644. 68	
*National Academy of Sciences	5, 000. 00	
		6, 644. 68
For Milbank Memorial fund: Milbank Memorial Fund		12, 000. 00
For joint committee on forestry: General Education Board		2, 500. 00
For national intelligence tests, 1921: World Book Co.—royalties		358. 06
For Child Development Abstracts: Subscriptions		3, 315. 30
For committee on food habits:		
Federal Security Agency	$20, 458. 12	
*National Academy of Sciences	4, 000. 00	
		24, 458. 12
For perceptual investigations: Office for Emergency Management		2, 069. 40
For committee on service personnel—selection and training:		
Office for Emergency Management	$82, 417. 43	
*National Academy of Sciences	3, 500. 00	
Perceptual investigations	2, 850. 00	
Central purposes fund	1, 500. 00	
		90, 267. 43
For office of psychological personnel:		
Society for Psychological Study of Social Studies	$25. 00	
American Association for Applied Psychology, Inc	1, 000. 00	
Samuel W. Fernberger	100. 00	
		1, 125. 00
For role of different containers in food habits; Cup and Container Institute		500. 00
For milk in American culture: Evaporated Milk Association		350. 00
For intersociety convention of psychologists: Samuel S. Fels		250. 00
For CAA—war training service: *National Academy of Sciences		4, 000. 00

(11) From various organizations—Continued.

For Annual Tables:		
California Institute of Technology	$200.00	
General Electric Co	500.00	
Research Laboratories Division, General Motors	250.00	
American Brass Co	50.00	
American Rolling Mill Co	50.00	
Bausch & Lomb Optical Co	50.00	
B. Pregel	100.00	
Eastman Kodak Co	500.00	
E. I. duPont de Nemours & Co	500.00	
Procter & Gamble Co	100.00	
Commercial Solvents Corporation	100.00	
Hercules Powder Co	100.00	
Anaconda Wire & Cable Co	100.00	
Victor Chemical Works	50.00	
The Epply Laboratory, Inc	50.00	
Taylor Instrument Companies	20.00	
The Martin Dennis Co	100.00	
Mellon Institute of Industrial Research	100.00	
Sun Oil Co	100.00	
B. F. Goodrich Co	100.00	
Shell Development Co	500.00	
International Nickel Co., Inc	150.00	
Aluminum Co. of America	100.00	
Röhm & Hass Co	100.00	
Goodyear Tire & Rubber Co	100.00	
St. Joseph Lead Co	35.00	
Bell Telephone Laboratories, Inc	500.00	
Vanadium Corporation of America	50.00	
Standard Oil Development Co	100.00	
Carnegie Institution of Washington	3,000.00	
		$7,755.00
For committee on passive protection against bombing: War Department		144,099.13
For committee on braking: Office for Emergency Management		10,833.22
For advisory office for scientific and technical personnel: Office for Emergency Management		33,064.62
For committee on research laboratory priorities: Office for Emergency Management		389.30
For Ethnogeographic Board joint fund:		
American Council of Learned Societies	$1,500.00	
Carnegie Corporation of New York	20,000.00	
Rockefeller Foundation	10,000.00	
		31,500.00
For committee on war use of research facilities: Office for Emergency Management		7,200.00
For bibliographic service to Central and South America: Office for Emergency Management		21,630.00
For survey of schools for osteopathy: *National Academy of Sciences		3,000.00
Total receipts from all sources		1,587,244.75

Balance sheet, National Research Council, as of June 30, 1943

ASSETS

Total book value of securities held	$152,433.01
Cash in banks June 30, 1943	510,040.77
Due from Bank of New York	889.80
Income receivable as shown under column "Budget balance"—receipts (p. 84)	139,000.00
National Academy of Sciences special, Advances from various funds	8,000.00
Property account—equipment at cost	53,473.49
Total	863,837.07

Balance sheet, National Research Council, as of June 30, 1943—Continued

LIABILITIES

Current liabilities:		
Division appropriations as shown under column "Budget balance"—disbursements (p. 87)		$728, 072. 39
Unappropriated fund, general		51, 491. 34
National Academy of Sciences, special	$10, 000. 00	
Less due from National Academy of Sciences	. 80	
		9, 999. 20
International Critical Tables: Capital funds		20, 800. 65
Capital invested in property		53, 473. 49
Total		863, 837. 07

ASSETS

[Securities purchased during the fiscal year 1942-43, are indicated thus (*)]

Securities	Face value	Book value	Market value June 30, 1943
Railroad bonds:			
General maintenance fund:			
Baltimore & Ohio 5's, 1995	$8, 000. 00	$6, 530. 00	$3, 380. 00
Cleveland, Cincinnati, Chicago & St. Louis 4½'s, 1977	10, 000. 00	9, 650. 00	5, 712. 50
Great Northern 3¾'s, 1967	10, 000. 00	9, 525. 00	8, 987. 50
Gulf, Mobile & Ohio* 4's, 1975	10, 000. 00	7, 322. 61	9, 425. 00
Lehigh Valley* 4½'s, 1950	10, 000. 00	6, 020. 00	7, 100. 00
Nashville, Chattanooga & St. Louis* 4's, 1978	10, 000. 00	6, 987. 50	7, 925. 00
New York, Lackawanna & Western* 4's, 1973	8, 000. 00	5, 505. 06	5, 840. 00
International Critical Tables:			
Baltimore & Ohio, Pittsburgh, Lake Erie & West Virginia System* 4's, 1951	10, 000. 00	5, 562. 50	6, 500. 00
New York, Lackawanna & Western* 4's, 1973	2, 000. 00	1, 445. 00	1, 460. 00
Total railroad bonds	78, 000. 00	58, 547. 67	56, 330. 00
Industrial bonds:			
General maintenance fund:			
United Drug* 5's, 1953	1, 000. 00	960. 00	1, 028. 75
International Critical Tables:			
United Drug* 5's, 1953	1, 000. 00	960. 00	1, 028. 75
Total industrial bonds	2, 000. 00	1, 920. 00	2, 057. 50
Foreign government bonds:			
General maintenance fund:			
Kingdom of Norway 4¼'s, 1965	9, 000. 00	9, 007. 50	8, 032. 50
International Critical Tables:			
Kingdom of Norway 4¼'s, 1965	5, 000. 00	5, 101. 25	4, 462. 50
Total foreign government bonds	14, 000. 00	14, 108. 75	12, 495. 00
	No. of shares	Book value	Market value June 30, 1943
Common stocks:			
General maintenance fund:			
Anaconda Copper	100	2, 840. 00	2, 762. 50
Central Aguirre Associates	150	3, 228. 75	3, 243. 75
Commercial Credit*	100	2, 243. 06	4, 050. 00
Commercial Investment Trust*	30	808. 26	1, 286. 25
Commonwealth Edison	200	4, 455. 00	4, 975. 00
Detroit Edison*	100	1, 879. 66	2, 000. 00
Liquid Carbonic	200	2, 678. 00	4, 125. 00
Standard Oil of New Jersey	100	4, 320. 00	5, 812. 50
Tybor Stores, Inc.*	150	75. 00	63. 75
International Critical Tables:			
Anaconda Copper	100	2, 840. 00	2, 762. 50
Central Aguirre Associates	50	1, 076. 25	1, 081. 25
Commercial Investment Trust*	70	1, 885. 93	3, 001. 25
Detroit Edison*	100	1, 904. 72	2, 000. 00
Tybor Stores, Inc.*	50	25. 00	21. 25
Total common stocks	1, 500	30, 259. 63	37, 185. 00
Preferred stocks:			
General maintenance fund:			
Crane*	100	10, 457. 50	10, 587. 50
Goodyear Tire & Rubber*	70	7, 044. 95	7, 175. 00
Total preferred stocks	170	17, 502. 45	17, 762. 50
Total common and preferred stocks	1, 670	47, 762. 08	54, 947. 50
	Face value		
Mortgage notes (secured by first mortgage on real estate)	[1] $5, 094. 51	5, 094. 51	[1] 5, 094. 51
Real estate	25, 000. 00	25, 000. 00	[1] 25, 000. 00
Total real estate and mortgages	30, 094. 51	30, 094. 51	30, 094. 51
Total securities, including common and preferred stocks		152, 433. 01	155, 924. 51

[1] No market available.

Receipts and disbursements, National Research Council, from July 1, 1942, to June 30, 1943

RECEIPTS

Appropriation	Received during year	Previously reported	Transfers and other credits	Budget	Budget balance, June 30, 1943
Rockefeller Foundation:					
National research fellowships in the natural sciences (RF 39103), 1942	$27,566.78	$32,433.22	....	$60,000.00	....
National research fellowships in the natural sciences (RF 39103), 1943	12,000.00	....	....	60,000.00	$48,000.00
Research fellowships in medicine (RF 40056), 1942	14,553.68	20,446.32	....	35,000.00	....
Research fellowships in medicine (RF 40056), 1943		....	....	35,000.00	35,000.00
Sex research fund (RF 41011), 1943	46,243.80		....	46,243.80	....
Central purposes fund, 1943	35,000.00		$37,628.95	72,628.95	....
Rotating fund, physics committees	1,554.87		3,648.89	5,203.76	....
Revolving fund for publication of mathematical books	....	6,479.81	280.61	6,760.42	....
Revolving fund for publication of mathematical tables (RF 40060)	76.00	15,516.33	....	15,592.33	....
Committee on sound control in vehicles	26,981.92	21,972.98	2,032.72	50,987.62	....
Committee on optical plastics	9.15	2,063.14	....	2,072.29	....
Journal of mathematical tables	985.25	....	....	985.25	....
Highway Research Board, 1942	1,666.67	38,260.26	....	39,926.93	....
Highway Research Board, 1943	26,880.62	....	7,795.57	34,676.19	....
Industrial Research Institute	11,510.00	5,507.92	.50	17,018.42	....
Metallurgical advisory committee (O. S. R. D.)	136,469.76	6,741.42	105.55	143,316.73	....
War metallurgy committee (WPB)	81,387.36	....	....	81,387.36	....
Committee on concrete research	4,099.79	1,142.62	178.99	5,421.40	....
Highway Research Board moving expenses	1,100.00	....	....	1,100.00	....
Quartermaster Corps problems	5,000.00	....	....	5,000.00	....
Committee on eutectic diagrams	134.64	365.36	....	500.00	....
Committee on catalysis	57.50	278.00	....	335.50	....
N. T. M. project	752.22	247.78	.75	1,000.75	....
Research fund, committee on sedimentation	187.39	929.08	....	1,116.47	....
Ore deposits as related to structural features	200.24	692.65	8.03	900.92	....
Committee on endocrinology, 1943	34,225.99	7,704.31	459.89	42,390.19	....
Special medical committees, Carnegie Corporation	541.66	8,170.45	....	8,712.11	....
Expenses, committees on military medicine	50.00	....	1,413.91	1,463.91	....
Projects, committees on military medicine	....	64.00	6,103.06	6,167.06	....
Committees on military medicine, revolving fund	121,874.87	38,541.96	6,237.05	166,653.88	....
Committee on materials in medicine and surgery	20,200.03	....	....	20,200.03	....
Tropical medicine lectures	15,000.00	....	11.90	15,011.90	....
Military medicine, information service	17,000.00	....	20.00	17,020.00	....
Tropical disease book fund	4,000.00	....	....	4,000.00	....
Medical food requirements	6,000.00	....	....	6,000.00	....
Committee on animal nutrition	129.00	228.06	....	357.06	....
National Live Stock and Meat Board fellowships	19,300.00	3,124.51	.73	22,425.24	....
Food and nutrition board	57,145.92	105.88	10.28	57,262.08	....
Nutrition Foundation fund	5,000.00	5,000.00	5,083.23	15,083.23	....
Committee on food composition	6,644.68	....	148.02	6,792.70	....
Milbank Memorial fund	12,000.00	....	....	12,000.00	....
Committee on nutritional aspects of ageing	10,500.00	....	....	10,500.00	....
Office of executive secretary, division of biology and agriculture	10,000.00	....	....	10,000.00	....
Joint committee on forestry	2,500.00	....	....	2,500.00	....
National intelligence tests, 1921	1,321.06	3,475.35	.53	4,796.94	....
Child Development Abstracts	3,315.30	1,979.71	....	5,295.01	....
Psychosomatic Medicine	1,216.50	2,774.24	....	3,990.74	....
Aircraft pilots, 1942	13,700.00	40,120.18	4,512.21	58,332.39	....
Aircraft pilots, 1943	112,500.00	....	366.62	112,866.62	....
Committee on food habits	24,473.27	2,000.30	....	26,473.57	....
Perceptual investigations	2,069.40	1,140.57	....	3,209.97	....
Publications, Psychosomatic Medicine	1,547.37	3,000.00	....	4,547.37	....
Committee on service personnel—selection and training	88,767.43	....	1,710.95	90,478.38	....
Office of psychological personnel	10,475.00	....	....	10,475.00	....
Obesity and allergy in childhood	3,700.00	....	....	3,700.00	....
Role of different containers in food habits	500.00	....	....	500.00	....
CAA—national training service	80,467.49	....	....	80,467.49	....

Receipts and disbursements, National Research Council, from July 1, 1942, to June 30, 1943—Continued

RECEIPTS—Continued

Appropriation	Received during year	Previously reported	Transfers and other credits	Budget	Budget balance, June 30, 1943
Milk in American culture	$350.00			$350.00	
Textbook in military psychology fund	480.00		$963.00	1,443.00	
Intersociety convention of psychologists	250.00			250.00	
CAA—war training service	4,000.00			4,000.00	
General maintenance executive board, 1943	700.00		2,500.00	3,200.00	
International Critical Tables	85.56	$890.47	12,959.30	13,935.33	
Royalty account, International Critical Tables	2,809.50	65,405.84		68,215.34	
Annual tables	11,529.59	12,454.95		23,984.54	
Committee on passive protection against bombing	144,099.13	3,094.22	1,571.16	148,764.51	
Subcommittee on individual hearing aids	10,000.00	6,031.16	400.00	16,431.16	
Committee on braking	10,833.22	1,795.21		12,628.48	
Advisory office for scientific and technical personnel	33,064.62	2,411.84	53.13	35,529.59	
Committee on research laboratory priorities	389.30	1,751.75		2,141.05	
Ethnogeographic Board joint fund	31,500.00	3,000.00	500.00	35,000.00	
Committee on war use of research facilities	7,200.00		15.03	7,215.03	
Victory tax withheld account	8,481.36			8,481.36	
Bibliographic service to Central and South America	21,630.00			21,630.00	
Survey of schools for osteopathy	3,000.00			3,000.00	
Fire resistance of materials	900.00			900.00	
Thermal investigations	1,050.25	1,647.84		2,698.09	
Ignition research	3,250.00	3,241.24	4.94	6,496.18	
Construction of high precision standards	1,327.00	959.25		2,286.25	
Investigation of high-strength reinforcement of concrete	5,000.00			5,000.00	
Motion picture projection equipment		1,612.70	164.00	1,776.70	
Expected reimbursement from Government on account of overhead	20,000.00			76,000.00	$56,000.00
Carnegie endowment fund	64,805.54		194.46	65,000.00	
Total	1,507,317.68	374,802.88	97,083.96	2,118,204.52	139,000.00
Sale of bonds	212.72				
Interest on bonds	3,270.47				
Miscellaneous receipts	12,858.74				
Reimbursements	63,585.14				
Total receipts	1,587,244.75				
July 1, 1942, balance in banks	360,454.28				
Grand total	1,947,699.03				

DISBURSEMENTS

Divisions	Disbursed during year	Previously reported	Reversions and other charges	Budget	Budget balance, June 30, 1943
I. Foreign relations: General maintenance, 1943			$300.00	$300.00	
II. Educational relations:					
General maintenance, 1943	$10.00		40.00	50.00	
University research fund	295.80			295.80	
III. Physical sciences:					
General maintenance, 1943	432.98		1,024.48	1,500.00	$42.54
Revolving fund for publication of mathematical books		$5,980.81		6,760.42	779.61
Physics committees, 1932		912.50	587.50	1,500.00	
Rotating fund, physics committees	6.65			5,203.76	5,197.11
Washington Biophysical Institute (RF 37020), 1942	1,904.15	8,889.42		11,930.02	1,136.45
Revolving fund for publication of mathematical tables	400.00	1,352.23		15,592.33	13,840.10
Committee on sound control in vehicles	35,997.44			50,987.62	14,990.18
Committee on optical plastics	1,000.00	1,072.29		2,072.29	
Journal of mathematical tables	464.51			985.25	520.74

Receipts and disbursements, National Research Council, from July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS—Continued

Divisions	Disbursed during year	Previously reported	Reversions and other charges	Budget	Budget balance, June 30, 1943
IV. Engineering and industrial research:					
General maintenance, 1942	$1, 388. 79	$5, 958. 01	$158. 55	$7, 505. 35	
General maintenance, 1943	1, 200. 76		1, 079. 24	3, 900. 00	$1, 620. 00
Highway Research Board, 1942		32, 132. 61	7, 794. 32	39, 926. 93	
Highway Research Board, 1943	29, 764. 08			34, 676. 19	4, 912. 11
Industrial Research Institute	9, 421. 84			17, 018. 42	7, 596. 58
Metallurgical advisory committee (O. S. R. D.)	124, 995. 86			143, 316. 73	18, 320. 87
Committee on concrete research	4, 576. 20			5, 421. 40	845. 20
War metallurgy committee (WPB)	57, 911. 26			81, 387. 36	23, 476. 10
Highway Research Board moving expenses	766. 77			1, 100. 00	333. 23
Quartermaster Corps problems				5, 000. 00	5, 000. 00
Heat transmission				373. 75	373. 75
V. Chemistry and chemical technology:					
General maintenance, 1942	57. 07	943. 18		1, 000. 25	
General maintenance, 1943	689. 53		775. 70	1, 500. 25	35. 02
Fellowship in protein chemistry				308. 89	308. 89
Committee on chemical data for ceramists	246. 31			649. 72	403. 41
Committee on catalysis				335. 50	335. 50
Committee on eutectic diagrams	500. 00			500. 00	
N. T. M. project	975. 42			1, 000. 75	25. 33
VI. Geology and geography:					
General maintenance, 1943	1, 773. 40		. 97	1, 887. 77	113. 40
Research fund, committee on sedimentation				1, 116. 47	1, 116. 47
Ore deposits as related to structural features	874. 77		26. 15	900. 92	
VII. Medical sciences:					
General maintenance, 1943	401. 34		1, 098. 66	1, 500. 00	
Sex research fund, 1942	7, 107. 36	54, 770. 06		61, 877. 42	
Sex research fund, 1943	43, 201. 83			46, 243. 80	3, 041. 97
Fellowships in medicine (RF 40056), 1942	13, 366. 80	22, 133. 20		35, 500. 00	
Fellowships in medicine (RF 40056), 1943	860. 30			35, 000. 00	34, 139. 70
Committee on endocrinology, 1942		48, 022. 58	7, 704. 31	55, 726. 89	
Committee on endocrinology, 1943	31, 578. 68			42, 390. 19	10, 811. 51
Special medical advisory committees to the Surgeons General of the Army and Navy	164. 52	12, 661. 47		12, 825. 99	
Fellowships in virus studies and orthopedics, 1941–42	10, 334. 65			49, 155. 18	38, 820. 53
Special medical committees, Carnegie Corporation	876. 93			8, 712. 11	7, 835. 18
War neurosis fund				307. 90	307. 90
Expenses, committees on military medicine				1, 463. 91	1, 463. 91
Welch fellowships (RF 41028)	623. 32			3, 799. 83	3, 176. 51
Projects, committees on military medicine				6, 167. 06	6, 167. 06
Committees on military medicine, revolving fund	146, 367. 24			166, 653. 88	20, 286. 64
Drugs and medical supplies	2, 000. 00			2, 000. 00	
Committee on materials in medicine and surgery	16, 157. 27			20, 200. 03	4, 042. 76
Tropical medicine lectures	6, 469. 88			15, 011. 90	8, 542. 02
Military medicine, information service	3, 703. 78			17, 020. 00	13, 316. 22
Tropical disease book fund	1, 184. 38			4, 000. 00	2, 815. 62
Medical food requirements	2, 093. 62			6, 000. 00	3, 906. 38

Receipts and disbursements, National Research Council, from July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS—Continued

Divisions	Disbursed during year	Previously reported	Reversions and other charges	Budget	Budget balance, June 30, 1943
VIII. Biology and agriculture:					
General maintenance, 1942	$81.42	$1,145.63	$72.95	$1,300.00	
General maintenance, 1943	1,491.71		8.29	1,500.00	
Committee on animal nutrition	347.21			357.06	$9.85
National Live Stock and Meat Board fellowships	16,099.30			22,425.24	6,325.94
Pharmaceutical researches	165.80			416.53	250.73
Committee on human heredity	8,736.01			14,515.04	5,809.03
Committee on aerobiology	224.70			1,688.88	1,464.18
Radiation bulletins				25.10	25.10
Committee on preservation of natural conditions				112.85	112.85
RCA fellowship	683.33			683.33	
Food and Nutrition Board	54,136.90			57,262.08	3,125.18
Nutrition Foundation fund	9,131.32			15,083.23	5,951.91
Committee on food composition	6,724.13			6,792.70	68.57
Milbank Memorial Fund	5,165.18			12,000.00	6,834.82
Committee on nutritional aspects of ageing	4,691.95			10,500.00	5,808.05
Office of executive secretary, division of biology and agriculture	4,041.21			10,000.00	5,958.79
Joint committee on forestry	545.08			2,500.00	1,954.92
IX. Anthropology and psychology:					
General maintenance, 1943	868.02		629.47	1,500.00	2.51
National intelligence tests, 1921	691.69		963.00	4,796.94	3,142.25
Child Development Abstracts	3,223.23			5,295.01	2,071.78
Directory of anthropologists				122.69	122.69
Psychosomatic medicine	2,119.65			3,990.74	1,871.09
Aircraft pilots, 1941	6,268.63			6,268.63	
Aircraft pilots, 1942	50,872.01			58,332.39	7,460.38
Aircraft pilots, 1943	57,006.09			112,866.62	55,860.53
Improved personality tests	1.08			19.33	18.25
Psychological techniques for military service	391.80			1,118.65	726.85
Support, division of anthropology and psychology				27.67	27.67
Committee on food habits	24,575.09			26,473.57	1,898.48
Perceptual investigations	3,059.97			3,209.97	150.00
Publications, psychosomatic medicine	2,022.12			4,547.37	2,525.25
Committee on service personnel—selection and training	68,324.52			90,478.38	22,153.86
Office of psychological personnel	8,969.89			10,475.00	1,505.11
Obesity and allergy in childhood	3,700.00			3,700.00	
Role of different containers in food habits	500.00			500.00	
CAA—National testing service	78,468.51			80,467.49	1,998.98
Milk in American culture	350.00			350.00	
Textbook in military psychology fund	2.28			1,443.00	1,440.72
Intersociety convention of psychologists				250.00	250.00
CAA—War training service	2,820.99			4,000.00	1,179.01
Expenses and supplies, 1942	965.75	8,650.01	25.85	9,641.61	
Expenses and supplies, 1943	16,123.33		436.22	17,417.73	858.18
New equipment, general, 1942	612.35	3,356.95	30.70	4,000.00	
New equipment, general, 1943	1,482.76			2,500.00	1,017.24
Salaries, 1942	757.07	88,845.18	971.75	90,574.00	
Salaries, 1943	107,501.08		16,746.42	124,282.00	34.50
Telephone and telegraph, 1942	1,159.97	4,300.10		5,460.07	
Telephone and telegraph, 1943	11,228.35			12,621.41	1,393.06
Executive Board:					
General maintenance, 1942	21.85	1,496.00		1,517.85	
General maintenance, 1943	2,193.91		1,006.09	3,200.00	
American Geophysical Union: General maintenance, 1943	400.00			400.00	
Publications and publicity:					
General maintenance, 1942	404.03	4,875.00	20.97	5,300.00	
General maintenance, 1943	1,001.75		2,180.69	4,000.00	817.56
National Academy Proceedings and subscriptions, 1943	2,500.00			2,500.00	
International Critical Tables	.12		13,454.60	13,935.33	480.61
Royalty account, International Critical Tables		65,405.84	2,809.50	68,215.34	

Receipts and disbursements, National Research Council, from July 1, 1942, to June 30, 1943—Continued

DISBURSEMENTS—Continued

Divisions	Disbursed during year	Previously reported	Reversions and other charges	Budget	Budget balance, June 30, 1943
Executive Board—Continued.					
Annual Tables	$9,562.06			$23,984.54	$14,422.48
Auditor's fees, 1942	500.00			500.00	
Attorney's fees, 1943	3,226.00			3,500.00	274.00
Research aid funds, refunds	629.01			629.01	
Retirement fund (approximately 5 percent of appropriations for salaries)				20,500.00	20,500.00
Committee on scientific aids to learning: Support	11,025.22			11,025.22	
Committee on scientific aids to learning: Projects	21,951.24			77,888.60	55,937.36
Committee on passive protection against bombing	118,604.57			148,764.51	30,159.94
Food committees				139.12	139.12
Subcommittee on individual hearing aids	7,320.58			16,431.16	9,110.58
Subcommittee on group hearing aids	1,811.01			4,963.35	3,152.34
Committee on braking	8,280.42			12,628.43	4,348.01
Advisory office for scientific and technical personnel	31,432.08			35,529.59	4,097.51
Committee on research laboratory priorities	2,141.05			2,141.05	
Special administrative funds	362.07	$2,444.93		2,807.00	
Ethnogeographic board joint fund	6,657.67			35,000.00	28,342.33
Central purposes fund, 1943	13,001.44		$22,500.00	72,628.95	37,127.51
Investigations on palmetto fiber	153.97			500.00	346.03
Committee on war use of research facilities	4,962.96			7,215.03	2,252.07
Victory tax withhheld account	4,108.23			8,481.36	4,373.13
Bibliographic service to Central and South America	570.99			21,630.00	21,059.01
Survey of schools for osteopathy	1,775.23			3,000.00	1,224.77
Fellowships in the natural sciences (RF 39103), 1942	36,866.03	23,815.91		60,681.94	
Fellowships in the natural sciences (RF 39103), 1943	3,403.41			60,000.00	56,596.59
Problems of refrigeration				677.37	677.37
Impermanency of records				158.11	158.11
Acoustic properties of materials	146.51			1,279.20	1,132.69
Thermal properties of liquids	1,634.20			3,343.33	1,709.13
Fire resistance of materials	720.63			900.00	179.37
Current meter investigations				126.62	126.62
Thermal investigations	616.21			2,698.09	2,081.88
Ignition research	3,248.75			6,496.18	3,247.43
Acidity of citrus fruits				8.44	8.44
Motion picture projection equipment				1,776.70	1,776.70
Construction of high precision standards	60.16		164.00	2,286.25	2,062.09
Experimental optical glass				400.00	400.00
Investigations on stainless steel sheets	294.92			3,986.75	3,691.83
Investigation of high-strength reinforcement of concrete				5,000.00	5,000.00
Reference library service:					
General maintenance, library, 1942	7.15	4,934.03	58.82	5,000.00	
General maintenance, library, 1943	664.89		4,681.28	5,420.00	73.83
Book fund, reference library service	631.12			1,666.27	1,035.15
Investment reserve fund	1,289.05		18,877.90	18,712.94	dr. 1,454.01
Total	1,432,657.46	404,097.94	106,228.38	2,671,056.17	728,072.39
Purchase of securities	5,000.00				
Total disbursements	1,437,657.46				
Balance in banks June 30, 1943:					
Riggs National Bank:					
National Academy of Sciences, special $9,999.20					
Plus amount not reimbursed by National Academy of Sciences .80					
10,000.00					
National Research Council 500,041.57	510,041.57				
Grand total	1,947,699.03				

July 31, 1943.

JEROME C. HUNSAKER, *Treasurer*.

REPORT OF THE AUDITING COMMITTEE

OCTOBER 18, 1943.

Dr. FRANK B. JEWETT,
President, National Academy of Sciences,
Washington, D. C.

DEAR PRESIDENT JEWETT: Following recent practice authorized by section 5, article V, of the bylaws of the National Academy of Sciences, the auditing committee engaged the services of a certified public accountant, William L. Yaeger, to prepare a detailed audit of the treasurer's accounts. After a systematic examination of the accounts of the treasurer of the Academy and of the National Research Council and of all securities, Mr. Yaeger submitted a report of his findings, with exhibits attached. The report covers all of the requirements in the bylaws cited above, which are as follows:

"5. The accounts of the treasurer shall, between July 1 and August 1 of each year, be audited * * * It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and the custodian of securities and to compare the stated income of such securities with the receipts of record; to examine all vouchers covering disbursements for account of the Academy, including the National Research Council, and the authority therefor, and to compare them with the treasurer's record of expenditures; to examine and verify the account of the Academy with each trust fund. * * *"

The committee accepts the report of the accountant that the treasurer's report correctly sets forth the financial condition of the National Academy of Sciences and the National Research Council and is an accurate statement of financial operations for the fiscal year 1943.

The investment reserve fund was created to provide for losses that might occur in the sale of securities. On July 1, 1942, the account showed a debit balance of $533,237.88. Losses to the extent of $300,392.81 from sales of securities were debited during this fiscal year and gains from sales amounted to $66,034.08. Contributions from the various funds of $8,285.85 were credited and on June 30, 1943, the debit balance was $759,310.76, a net increase of $226,072.88 for the year ending June 30, 1943.

The total income of the Academy from investments during the past year was $167,275.76, a decrease of $10,109.06 below the income of the previous year. The market value of securities owned as of July 1, 1942, was $2,729,068.23 and as of June 30, 1943, was $3,367,845.65, an increase of $638,777.20.

Very truly yours,

ARTHUR L. DAY,
JOHN R. SWANTON,
W. C. MENDENHALL, *Chairman.*

APPENDIX A

NATIONAL ACADEMY OF SCIENCES

1. CONSTITUTION

[As amended and adopted Apr. 17, 1872, and further amended Apr. 20, 1875; Apr. 21, 1881; Apr. 19, 1882; Apr. 18, 1883; Apr. 19, 1888; Apr. 18, 1895; Apr. 20, 1899; Apr. 17, 1902; Apr. 18, 1906; Nov. 20, 1906; Apr. 17, 1907; Nov. 20, 1907; Apr. 20, 1911; Apr. 16, 1912; Apr. 21, 1915; Nov. 11, 1924; Nov. 9, 1925; Oct. 18, 1927; Nov. 18, 1929; Sept. 18, 1930; Apr. 24, 1933; Apr. 27, 1936; Apr. 28, 1937; Apr. 22, 1940; Oct. 26, 1942]

PREAMBLE

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States, on the 3d day of March, A. D. 1863, and in conformity with amendments to said act approved July 14, 1870, June 20, 1884, and May 27, 1914, the National Academy of Sciences adopts the following amended constitution and bylaws:

ARTICLE I.—OF MEMBERS

SECTION 1. The Academy shall consist of members, members emeriti, and foreign associates. Members must be citizens of the United States.

SEC. 2. Members who, from age or inability to attend the meetings of the Academy, wish to resign the duties of active membership may, at their own request, be transferred to the roll of members emeriti by a vote of the Academy.

SEC. 3. The Academy may elect 50 foreign associates.

SEC. 4. Members emeriti and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the Academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the Academy.

ARTICLE II.—OF THE OFFICERS

SECTION 1. The officers of the Academy shall be a president, a vice president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of 4 years, by a majority of votes present, at the annual meeting of the year in which the current terms expire. The date of expiration of the terms of office shall be June 30. In case of a vacancy the election shall be held in the same manner at the meeting when such vacancy occurs or at the next stated meeting thereafter, as the Academy may direct, and shall be for a term expiring on June 30 of the fourth year after that in which the election takes place. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the Academy until the next stated meeting of the Academy.

COUNCIL

SEC. 2. The officers of the Academy, together with six members to be elected by the Academy, and the chief executive officer of the National Research Council (provided he be a member of the Academy) shall constitute a Council for the transaction of such business as may be assigned to them by the constitution or the Academy.

EXECUTIVE COMMITTEE

SEC. 3. There shall be an executive committee of the Council of the Academy, composed of seven members, consisting of the president and vice president of the Academy, the chief executive officer of the National Research Council (provided he be a member of the Academy), the home secretary of the Academy, the treasurer of the Academy, and additional members of the Council of the Academy appointed by the president.

Their terms as members of the executive committee shall be coterminous with the term of their other office.

Except those powers dealing with nominations to membership in the Academy, the executive committee between the meetings of the Council shall have all the powers of the Council of the Academy, unless otherwise ordered by the Council.

The members of the executive committee of the Academy shall by virtue of their office be members of the executive board of the National Research Council and shall represent the Academy at all its meetings.

The president and home secretary of the Academy shall, respectively, be chairman, and secretary of the executive committee.

In the absence of the president and the vice president or home secretary the executive committee may select from among its members a chairman or a secretary pro tem.

The executive committee shall keep regular minutes and shall report all of its proceedings to the Council of the Academy for their information.

Unless otherwise ordered by the Council of the Academy or the executive committee, the executive committee shall meet once in each calendar month, and a special meeting may be called at any time by authority of the chairman, on reasonable notice.

Four members of the executive committee shall constitute a quorum. Letter ballots shall not be valid unless ratified at a meeting.

CUSTODIAN OF BUILDINGS AND GROUNDS

SEC. 4. On recommendation of the president, the Council of the Academy shall appoint a custodian of buildings and grounds, who, except where otherwise provided in the constitution and bylaws, shall have custody of all buildings, grounds, furniture, and other physical property belonging to the National Academy of Sciences or the National Research Council, or entrusted to their care.

He shall be responsible for and shall manage and administer these under such generic rules as the Council of the Academy may make and shall approve all vouchers for pay rolls and disbursements that come under authorized budget items or are specifically authorized by the Council of the Academy for the maintenance and operation of the Academy's and the Research Council's physical property.

He shall hold office at the pleasure of the Council of the Academy and shall receive such salary as it may agree and shall give such bond for the faithful performance of his duties as it may require.

He shall prepare and present to the finance committee of the Academy the buildings and grounds division of the general budget.

ADVISORY COMMITTEE ON BUILDINGS AND GROUNDS

He shall be chairman of a joint advisory committee of five on buildings and grounds, of which two members shall be appointed by the president of the Academy from the Academy Council, and two from the executive board of the National Research Council, which committee shall decide, subject to the approval of the Council of the Academy, all questions of allocation of space and use of public rooms.

FINANCE COMMITTEE

SEC. 5. There shall be a finance committee, of which the treasurer shall be chairman, consisting of the president of the Academy (or in his absence the vice president), the treasurer, the chief executive officer of the National Research Council (provided he be a member of the Academy), and two or three other members of the Academy appointed by the president, one of whom shall be a member of the executive board of the National Research Council.

It shall be the duty of the finance committee to provide for the safe custody of all financial resources of the Academy and to determine all matters relating to the purchase and sale of its securities.

It shall be the further duty of the finance committee to prepare and present to the Council of the Academy for adoption the "general budget," made up of the three "divisional budgets," of the Academy proper, of the Research Council, and of buildings and grounds, which divisional budgets shall be presented to the finance committee, respectively, by the treasurer, the chief executive officer of the National Research Council, and the custodian of buildings and grounds.

The finance committee shall be empowered to employ competent investment counsel (hereinafter called the financial advisor) to advise with the committee upon the purchase and sale of all securities, mortgages, or other investments.

PRESIDENT

SEC. 6. The president of the Academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the Academy, of the Academy Council, and of the executive board of the National Research Council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members or other persons especially conversant with the subjects, and report thereon to the Academy at its meeting next ensuing; and, with the Council, shall direct the general business of the Academy.

GOVERNMENT REQUESTS

The president shall be ex-officio a member of all committees empowered to consider questions referred to the Academy by the Government of the United States.

SECRETARIES

SEC. 7. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and Council in cases of doubt, and reporting their action to the Academy at one of the stated meetings in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

It shall be the duty of the home secretary to keep the minutes of each business and scientific session, and after approval to enter these upon the permanent records of the Academy.

TREASURER

Sec. 8. The treasurer shall attend to all receipts and disbursements of the Academy, giving such bond and furnishing such vouchers as the Council may require. He shall collect all dues, assessments, and subscriptions, and keep a set of books showing a full account of receipts and disbursements and the condition of all funds of the Academy. He shall be the custodian of the corporate seal of the Academy.

ADMINISTRATIVE COMMITTEE, NATIONAL RESEARCH COUNCIL

Sec. 9. The president, vice president, home secretary, and treasurer shall be members of the administrative committee of the National Research Council and shall represent the Academy at all its meetings.

Article III.—Of the Meetings

ACADEMY

Section 1. The Academy shall hold one stated meeting, called the annual meeting, in April of each year in the city of Washington, and another stated meeting, called the autumn meeting, at a place to be determined by the Council. The Council shall also have power to fix the date of each meeting.

Special business meetings of the Academy may be called, by order of eight members of the Council, at such place and time as may be designated in the call.

Special scientific meetings of the Academy may be held at times and places to be designated by a majority of the Council.

Sec. 2. The names of the members present at each session of a meeting shall be recorded in the minutes, and 20 members shall constitute a quorum for the transaction of business.

Sec. 3. Scientific sessions of the Academy, unless otherwise ordered by a majority of the members present, shall be open to the public; sessions for the transaction of business shall be closed.

COUNCIL OF THE ACADEMY

Sec. 4. Stated meetings of the Council shall be held during the stated or special meetings of the Academy, and four members shall constitute a quorum for the transaction of business. Special meetings of the Council may be convened at the call of the president and two members of the Council or of four members of the Council.

DUES IN ARREARS

Sec. 5. No member whose dues are in arrears shall vote at any business meeting of the Academy.

ARTICLE IV.—OF ELECTIONS AND REGULATIONS

SECTION 1. All elections of officers and members shall be by ballot, and each election shall be held separately.

SEC. 2. The time for holding an election of officers shall be fixed by the Academy at least 1 day before the election is held.

COUNCIL OF THE ACADEMY

SEC. 3. The election of six members of the Council shall be as follows:

At the annual meeting in April 1907, six members of the Council to be elected, of whom two shall serve for 3 years, two for 2 years, and two for 1 year, their respective terms to be determined by lot. Each year thereafter the terms of two members shall expire and their successors, to serve for 3 years, shall be elected at the annual meeting in each year. The date of expiration of the terms shall be June 30.

SECTIONS

SEC. 4. The Academy shall be divided by the Council into sections representing the principal branches of scientific research. Each section shall elect its own chairman to serve for 3 years. The chairman shall be responsible to the Academy for the work of his section.

ADVISORY COMMITTEE ON MEMBERSHIP

To provide that the Academy shall be more adequately representative of the potential scientific effort of the country and better able to discharge its obligations to Government, the Council of the Academy, acting with the chairmen of the sections, shall be an advisory committee on membership which shall recommend numbers of new members to the various sections. The numbers thus recommended to a section are to be for 3 years in advance. The advisory committee on membership may organize temporary nominating groups either by subdividing a present section into two or more groups or by forming new intersectional or extrasectional groups to which numbers of new members may be assigned. Such temporary nominating groups may then nominate new members in accordance with the rules laid down for sections.

NOMINATIONS

Nominations to membership in the Academy shall be made in writing and approved by two-thirds of the members voting in a section on the branch of research in which the person nominated is eminent, or by a majority of the Council, or by a majority (however distributed) of the members voting in any two sections. The nomination shall be sent to the home secretary by the chairman of the section before January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the Academy.

ELECTION PROCEDURE

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which must be transmitted to the home secretary at least two weeks in advance of the annual meeting, and a final ballot, to be taken at the meeting.

PREFERENCE BALLOT

Preference ballot.—From the list of nominees submitted by the home secretary, each member shall select and inscribe on a ballot, to an extent not greater than one-half nor less than one-third the list, those names which he prefers, as these limits shall be interpreted by the home secretary in his discretion, and announced by him, no weight being attached to the order of the names, and ballots not complying with these requirements being discarded. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

After the preference list has been made up in the manner stated, the president, acting for the Council, may request permission to advance one or more nominees to a higher place on grounds of the general interests of the Academy. If a majority of the members of the Academy present favor such an advance it shall be made. The chairman of any section having two or more nominees on the list may, when its first nominee is reached, request the permission of the Academy to interchange the positions (on the preference list) of the nominees of his section, without altering in any way the positions of nominees from other sections. If a majority of the members of the Academy present favor permitting a section to make such interchange of its own nominees, it shall be done before proceeding further with the election.

FINAL BALLOT

A vote shall be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receives two-thirds of the votes cast and not less than 30 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until 30 nominees shall have been elected, or until the total membership of the Academy shall have reached 450, or until the Academy shall terminate the election by vote as provided below. In voting the final ballot, members shall inscribe on the ballot the name of the nominee with either "*yes*" or "*no*" or "*blank*," and only ballots thus inscribed shall be counted. Members appointed as tellers must vote before counting the ballots.

If, however, a nominee receives a majority of the votes of those members voting in the preference ballot he may be declared elected by a two-thirds voice vote.

ELECTION

Not more than 30 members shall be elected at one annual meeting.

It shall be in order at any point in the course of an election to move that the election be closed. If two-thirds of those present vote in favor of such motion, it shall prevail, and the election shall thereupon terminate.

Before and during elections a discussion of the merits of nominees will be in order.

SEC. 6. Every member elected shall accept his membership, personally or in writing, before the close of the next stated meeting after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

FOREIGN ASSOCIATES

SEC. 7. Foreign associates may be nominated by the Council and may be elected at the annual meeting by a two-thirds vote of the members present.

CERTIFICATES OF ELECTION

SEC. 8. A diploma, with the corporate seal of the Academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of membership and to foreign associates on their election.

RESIGNATIONS

SEC. 9. Resignations shall be addressed to the president and acted on by the Academy.

DUES, NONPAYMENT

SEC. 10. Whenever a member has not paid his dues for 4 successive years, the treasurer shall report the fact to the Council, which may report the case to the Academy with the recommendation that the person thus in arrears be declared to have forfeited his membership. If this recommendation be approved by two-thirds of the members present, the said person shall no longer be a member of the Academy, and his name shall be dropped from the roll.

ARTICLE V.—OF SCIENTIFIC COMMUNICATIONS, PUBLICATIONS, AND REPORTS

SCIENTIFIC SESSIONS

SECTION 1. Communications on scientific subjects shall be read at scientific sessions of the Academy, and papers by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

SEC. 2. Any member of the Academy may read a paper from a person who is not a member and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the Council or of the committee on arrangements, or on recommendation by an Academy member and approval by the committee on arrangements.

PUBLICATIONS

SEC. 3. The Academy may provide for the publication, under the direction of the Council, of Proceedings, scientific Memoirs, Biographical Memoirs, and Reports.

PROCEEDINGS

The Proceedings shall be primarily a medium of first publication for original articles, in brief form, of permanent scientific value.

MEMOIRS

The scientific Memoirs shall provide opportunity for the publication of longer and more detailed scientific investigations.

The Biographical Memoirs shall contain an appropriate record of the life and work of the deceased members of the Academy.

ANNUAL REPORT

An annual report shall be presented to Congress by the president and shall contain the annual reports of the treasurer and the auditing committee, a suitable summary of the reports of the committees in charge of trust funds, and a record of the activities of the Academy for the fiscal year immediately preceding, and other appropriate matter. This report shall be presented to Congress by the president after authorization by the Council. It shall also be presented to the Academy at the annual meeting next following.

TREASURER'S REPORT

The treasurer shall prepare a full report of the financial affairs of the Academy at the end of the fiscal year. This report shall be submitted to the Council for approval and afterward presented to the Academy at the next stated meeting. He shall also prepare a supplementary financial statement to December 31 of the ensuing fiscal year for presentation at the annual meeting.

GOVERNMENT REQUESTS

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the Council for approval, except those requested by the Government of the United States which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained.

ARTICLE VI.—OF TRUST FUNDS AND THEIR ADMINISTRATION

TRUSTS

SECTION 1. Devises, bequests, donations, or gifts having for their object the promotion of science or the welfare of the Academy may be accepted by the Council for the Academy. Before the acceptance of any such trust the Council shall consider the object of the trust and all conditions or specifications attaching thereto. The Council shall make a report of its action to the Academy.

MEDALS

SEC. 2. Medals and prizes may be established in accordance with the provisions of trusts or by action of the Academy.

TRUST FUND COMMITTEES

SEC. 3. Unless otherwise provided by the deed of gift, the income of each trust fund shall be applied to the objects of that trust by the action of the Academy on the recommendation of a standing committee on that fund.

ARTICLE VII.—OF ADDITIONS AND AMENDMENTS

Additions and amendments to the constitution shall be made only at a stated meeting of the Academy. Notice of a proposition for such a change must be submitted to the Council, which may amend the proposition and shall report thereon to the Academy. Its report shall be considered by the Academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated meeting, and if it receives two-thirds of the votes cast it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted as if the members were present.

2. BYLAWS

[In accordance with a resolution of the Academy, taken at its meeting on April 21, 1915, the bylaws are arranged in groups, and each group is numbered to correspond with the article of the constitution to which it relates]

I

1. The holders of the medal for eminence in the application of science to the public welfare shall be notified, like members, of the meetings of the Academy and invited to participate in its scientific sessions.

2. A foreign associate of the Academy who becomes a citizen of the United States shall have all the privileges and duties of a member of the Academy unless he shall request otherwise, and shall be included in the list of members in the section of his choice.

II

1. The proper secretary shall acknowledge all donations made to the Academy and shall at once report them to the Council for its consideration.

2. The home secretary shall keep a record of all grants of money or awards of prizes or medals made from trust funds of the Academy. The record for each grant of money shall include the following items: Name of fund, date and number of the grant, name and address of

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recipient, amount of grant, and date or dates of payment, purpose of grant, record of report of progress, and resulting publications.

3. The executive secretary, who may be a nonmember of the Academy, shall receive a salary to be fixed by the Council.

4. The treasurer shall keep the home secretary informed of all warrants received from directors of trust funds not controlled by the Academy and of the date or dates of payment of all warrants.

GOVERNMENT REQUESTS

5. The treasurer is authorized to defray, when approved by the president, all the proper expenses of committees appointed to make scientific investigations at the request of departments of the Government, and in each case to look to the department requesting the investigation for reimbursement to the Academy.

TREASURER, NATIONAL RESEARCH COUNCIL

6. The treasurer is authorized to act as the treasurer ex officio of the National Research Council.

BURSAR

7. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee and be directly responsible to the treasurer.

INVESTMENTS

8. All investments and reinvestments of either principal or accumulations of income of the trust and other funds of the Academy shall be made by the treasurer, in accordance with the decisions of the finance committee, in the corporate name of the Academy, in the manner and in the securities designated or specified in the instruments creating the several funds, or in the absence of such designation or specification, in bonds of the United States or of the several States, or in bonds or notes secured by first mortgages on real estate, in investments legal for savings banks under the laws of Massachusetts or New York, or in other securities recommended by the financial adviser.

The treasurer may invest the capital of all trust funds of the Academy which are not required by the instruments creating such funds to be kept separate and distinct in a consolidated fund, and shall apportion the income received from such consolidated fund among the various funds composing the same in the proportion that each of said funds shall bear to the total amount of funds so invested: *Provided, however*, That the treasurer shall at all times keep accurate accounts showing the amount of each trust fund, the proportion of the income from the consolidated fund to which it is entitled, and the expenses and disbursements properly chargeable to such fund.

The treasurer shall have authority, with the approval of the finance committee, to sell, transfer, convey, and deliver in the corporate name and for the benefit of the Academy any stocks, bonds, or other securities standing in the corporate name.

CUSTODIAN OF SECURITIES

9. On the recommendation of the finance committee, the Council shall contract with a bank, trust company, or corresponding fiduciary institution to serve as the custodian of securities, including all of the Academy's personal property in the form of bonds, mortgages, and other securities, to collect the income from them, to protect the Academy in respect to expirations, reissues, and notifications, and to buy or sell securities on the order of the treasurer, as approved by the finance committee.

CONTRACTS

10. No contract shall be binding upon the Academy which has not been first approved by the Council.

DUES

11. The assessments required for the support of the Academy shall be fixed by the Academy on the recommendation of the Council and shall be payable within the calendar year for which they are assessed.

FINANCE COMMITTEE MEETINGS

12. The finance committee may invite to be present at any of its meetings the chief executive officer of the Research Council, the custodian of buildings and grounds, and the bursar, but they shall not vote.

III

MEETINGS

1. At the business sessions of the Academy the order of procedure shall be as follows:

(1) Chair taken by the president, or, in his absence, by the vice president.
(2) Roll of members called by home secretary (first session of the meeting only).
(3) Minutes of the preceding session read and approved.
(4) Stated business.
(5) Reports of president, secretaries, treasurer, and committees.
(6) Business from Council.
(7) Other business.

RULES OF ORDER

2. The rules of order of the Academy shall be those of the Senate of the United States, unless otherwise provided by the constitution or bylaws of the Academy.

3. In the absence of any officer, a member shall be chosen to perform his duties temporarily, by a plurality of viva voce votes, upon open nomination.

DEATHS

4. At each meeting the president shall announce the death of any members since the preceding meeting. As soon as practicable there-

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after he shall designate a member to write—or to secure from some other source approved by the president—a biographical notice of each deceased member.

COMMITTEE ON ARRANGEMENTS

5. For the annual meeting a committee of five members, appointed for each meeting, and the home secretary shall constitute the committee on arrangements, of which the home secretary shall be chairman. For the autumn meeting a member of the local group shall be chairman of the committee on arrangements, of which the home secretary shall be a member ex officio.

SCIENTIFIC PROGRAM

It shall be the duty of the committee on arrangements to prepare the scientific program for the annual meeting; and for this purpose it shall be empowered to solicit papers from members or others. It shall also be empowered to ascertain the length of time required for reading papers to be presented at the scientific sessions of the Academy and, when it appears advisable, to limit the time to be occupied in their presentation or discussion.

The committee on arrangements shall meet not less than 2 months previous to each meeting. It shall prepare the detailed program of each day and in general shall have charge of all business and scientific arrangements for the meeting for which it is appointed.

PAPERS—TIME LIMIT

6. No paper requiring more than 15 minutes for its presentation shall be accepted unless by invitation of the committee on arrangements.

No speaker shall occupy more than 30 minutes for presentation of papers during the scientific sessions of a single meeting of the Academy, except by invitation of the committee on arrangements.

Time shall not be extended except by vote of the Academy, and then not to exceed 5 minutes. The presiding officer shall warn speakers 2 minutes before the expiration of their time.

The discussion of individual papers shall be limited not to exceed 5 minutes, and the total time for discussion by any one speaker for all scientific sessions in any one meeting shall not exceed 15 minutes, unless approved by the Academy.

In order that adequate opportunity be given for the discussion of papers on the program, the committee on arrangements shall, in making up the program for the scientific sessions, allot not more than 80 percent of the available time of each session to the actual reading of papers.

If the number of papers accepted is too large to be presented in the scientific sessions, provision shall be made for holding two or more sessions simultaneously.

In arranging the program the committee on arrangements shall group the papers as nearly as practicable according to subject.

No paper shall be entered upon the printed program of scientific sessions unless the title is in the hands of the committee on arrangements at least 2 weeks in advance of the meeting. In the event that titles are received later, they shall be placed in order of receipt at the end of the list and read, if there is time. Such supplementary titles shall be conspicuously posted.

IV

SECTIONS

1. The term of service of each chairman of a section shall be 3 years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor, and to report the results of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms.

PROPOSALS FOR NOMINATION

2. (1) Intersectional: Proposals for nomination to membership may be made in writing by any five members of the Academy and addressed to the home secretary; each such proposal shall be accompanied by a record of the scientific activities of the person proposed and by a list of his principal contributions to science, in triplicate; and with a statement as to the sections to which the name proposed shall be submitted for consideration. Such proposals as have been received by the home secretary prior to October 1 shall upon that date be sent by him to the chairman of each section designated, with a copy of the record and list of contributions.

(2) Sectional: Proposals for nomination to membership shall be in writing and shall be sent to the chairman of the section not later than October 1. The proposal for nomination of any individual will be accepted for consideration by the section only if it is accompanied by a list of titles and references of the more important published scientific articles of the individual and by a factual summary, not over 250 words in length, of his accomplishments.

Each section chairman shall edit material thus received and, at the time of the informal ballot, distribute it, together with the material from the home secretary, relative to intersectional proposals, to the members of the section. The home secretary's office, if called upon, will assist the chairmen of the sections in the multigraphing of this material.

Each chairman shall keep a record of the names listed on the informal ballot and shall strike from the lists those names which were on the list in the previous year and received less than two votes on the informal ballot or had been on the list for 3 consecutive years without receiving in any one of these years on the informal ballot so many as one-fourth of the votes cast (counting the votes according to the number of members in the section who vote and not by the number of persons on the list for whom they vote). The home secretary shall keep a record of the votes on the informal ballots in the case of those persons proposed to two or more sections of the Academy and shall cause such names to be stricken from the lists of all sections if in 3 consecutive years there be no two sections in which the number of votes cast for the proposed nominee exceeds one-sixth of the votes cast in those sections except in case the number should be as many as

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one-fourth of the votes cast in one section, in which case the proposal should be considered thenceforth as a proposal in that section only. No proposal for nomination which is thus stricken from the list of the informal ballot shall be considered by the section (or sections) unless again proposed for nomination in the appropriate manner in a subsequent year.

NOMINATION BALLOTS

3. The chairman of each section of the Academy shall submit to the members of his section, not later than November 1 of each year, an informal ballot containing in alphabetical order and without indications of rank on ballots of the previous year, the names of all those persons who received not less than two votes in the informal ballot of the preceding year and not less than one-fourth of the votes on the informal ballot in at least one of the preceding 3 years in the case of names on the list for 3 years or have been continued on the list by the home secretary or have been added to the list by him or have been newly proposed for consideration in accordance with the procedure above defined. Each member of the section shall be expected to return his ballot to the chairman within 2 weeks, with his signature and with crosses against the names of those persons whom he is prepared to endorse for nomination. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he judges to be worthy of nomination.

In order to secure an adequate number of nominations the chairman, when necessary, shall obtain by personal solicitation a fuller vote of his section or shall submit to the section a supplementary formal ballot.

The chairman shall then certify to the home secretary, prior to January 1, the names of all persons who have been voted for on the formal ballots, together with a statement of the number of votes each candidate received and of the number of members voting. Of these, all persons who receive the votes of two-thirds of the members voting in the section, in cases voted upon by one section only, or the votes of one-half (however distributed) of the members voting in any two sections, in cases voted upon by more than one section, shall be considered nominated.

A properly edited statement of the accomplishments of each individual nominated to the Academy by the sections shall be sent by the section chairmen to the home secretary along with the nominations of the section. These statements, together with summaries pertaining to those persons nominated intersectionally or nominated by the Council, shall be reproduced and distributed to the members of the Academy at the time of the preference ballot.

Persons nominated to the Academy and rejected by the Academy at the ensuing election may not be further considered by the sections until they have again been proposed for nomination in the appropriate manner in a subsequent year. Persons nominated but not voted upon by the Academy shall without further action be presented to the Academy upon the preference ballot of the next following year; but, if again not voted upon, the nominations shall lapse and not be considered except when renewed in the regular order.

ADVISORY COMMITTEE ON MEMBERSHIP

4. Meetings of the advisory committee on membership shall be held immediately following the election of new members of the Academy, at the annual meeting. The president of the Academy shall be chairman of the advisory committee on membership.

TEMPORARY NOMINATING GROUPS

Members of the Academy who have been asked to serve on temporary nominating groups by the advisory committee on membership shall retain membership in their respective sections and shall be entitled to vote on the informal and formal ballots of their section.

When a temporary nominating group is organized by the advisory committee on membership, the member of the group who is designated as chairman by the advisory committee on membership shall immediately notify all members of the Academy in that group of their assignment by the advisory committee on membership as members of the group, listing all members of the group in this notification, and shall further transmit to all members of the group the specifications as prepared by the advisory committee on membership, of the special branch of science which the group is to canvass; and shall then obtain from the members of the group, before October 1, proposals of names of persons in that special branch of science to be considered in the election of new members by the Academy. Such proposals shall be submitted to the group, by the chairman, not later than November 1 for informal ballot. The informal and formal ballots shall be governed by the same rules as ballots of sections; and the chairman shall report to the home secretary the results of the formal ballot of the group under the same rules as apply to sections.

PREFERENCE BALLOT

5. Preference ballots for the election of members shall be sealed in a blank envelope, which shall be enclosed in another bearing the name of the sender, and which shall be addressed to the home secretary, who shall cause the ballots to be tabulated for use at the election. If in any case it is impossible to determine who cast the ballot, or if the latter contain more or fewer than the number of names provided for in article IV, section 5, of the constitution, the ballot shall be rejected, but minor defects in a ballot shall be disregarded when the intent of the voter is obvious.

6. All discussions of the claims and qualifications of nominees at meetings of the Academy shall be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the Academy at the time of the discussion.

7. Members of the Academy are permitted to choose the section with which they wish to be affiliated, and no one shall be a member of more than one section; but this does not preclude service on a temporary nominating group at the request of the advisory committee on membership.

V

PROCEEDINGS

1. The publication of the Proceedings shall be under the general charge of the Council, which shall have final jurisdiction upon all questions of policy relating thereto.

The National Academy of Sciences and the National Research Council shall cooperate in the publication of the Proceedings, beginning with volume VII.

MEMOIRS

2. Memoirs may be presented at any time to the home secretary, who shall report the date of their reception at the next session; but no Memoir shall be published unless it has been read or presented by title before the Academy.

Before publication all Biographical and scientific Memoirs must be referred to the committee on publication, who may, if they deem best, refer any Memoir to a special committee, appointed by the president, to determine whether the same should be published by the Academy.

3. Memoirs shall date in the records of the Academy from the date of their presentation to the Academy, and the order of their presentation shall be so arranged by the secretary that, so far as may be convenient, those upon kindred topics shall follow one another.

TREASURER'S REPORT

4. The annual report of the treasurer shall contain—

(1) A concise statement of the source, object, and amount of all trust funds of the Academy.

(2) A condensed statement of receipts and expenditures.

(3) A statement of assets and liabilities.

(4) Accounts with individual funds.

(5) Such other matter as he considers appropriate.

AUDITING COMMITTEE

5. The accounts of the treasurer shall, between July 1 and August 1 of each year, be audited under the direction of a committee of three members to be appointed by the president at the annual meeting of the Academy. It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and the custodian of securities and to compare the stated income of such securities with the receipts of record; to examine all vouchers covering disbursements for account of the Academy, including the National Research Council, and the authority therefor, and to compare them with the treasurer's record of expenditures; to examine and verify the account of the Academy with each trust fund. The auditing committee may employ an expert accountant to assist the committee. The reports of the treasurer and auditing committee shall be presented to the Academy at the autumn meeting and shall be published with that of the president to Congress. They shall be distributed to the members in printed form at the annual meeting.

VI

PROPERTY

1. All apparatus and other materials of permanent value purchased with money from any grant from a trust fund shall be the property of the Academy unless specific exception is made in the grant or by

subsequent action of the Council. Receipts for all such property shall be signed by the grantee and shall be forwarded to the home secretary, who shall file them with the custodian of buildings and grounds. All apparatus and unused material of value acquired in this way shall be delivered to the custodian of buildings and grounds on completion of the investigation for which the grant was made, or at any time on demand of the Council, and the custodian of buildings and grounds shall give an appropriate release therefor.

2. A stamp corresponding to the corporate seal of the Academy shall be kept by the secretaries, who shall be responsible for the due markings of all books and other objects to which it is applicable.

Labels or other proper marks of similar device shall be placed upon objects not admitting of the stamp.

3. The fiscal year of the Academy shall end on June 30 of each year.

STANDING COMMITTEES—RESEARCH FUNDS

4. Standing committees of the Academy on trust funds, the income of which is applied to the promotion of research, shall consist of 3 or 5 members. In order to secure rotation in office in such committees, when not in conflict with the provisions of the deeds of gift, the term of service on a committee of 3 members shall be 3 years; on a committee of 5 members the term shall be 5 years.

5. The annual reports of the committees on research funds shall, so far as the Academy has authority to determine their form, give a current number to each award, stating the name, position, and address of the recipient; the subject of research for which the award is made and the sum awarded; and in later annual reports the status of the work accomplished under each award previously made shall be announced, until the research is completed, when announcement of its completion, and, if published, the title and place of publication shall be stated, and the record of the award shall be reported as closed.

VII

AMENDMENTS

1. Any bylaw of the Academy may be amended, suspended, or repealed on the written motion of any two members, signed by them, and presented at a stated meeting of the Academy, provided the same shall be approved by a majority of the members present.

3. ORGANIZATION OF THE ACADEMY

JULY 1, 1943

	Expiration of terms
Jewett, F. B., president	June 30, 1947
Bowman, Isaiah, vice president	June 30, 1945
Cannon, W. B., foreign secretary	June 30, 1946
Wright, F. E., home secretary	June 30, 1947
Hunsaker, J. C., treasurer	June 30, 1944

Brockett, Paul, executive secretary [1]
Yule, J. Herbert J., bursar [1]

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[1] Not members of the Academy or of the Council of the Academy.

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ADDITIONAL MEMBERS OF THE COUNCIL

1941–44:
- Fred, E. B.
- Mitchell, S. A.

1942–45:
- Corner, G. W.
- Richards, A. N.

1943–44: Harrison, R. G.[2]

1943–46:
- Clark, W. M.
- Miles, W. R.

EXECUTIVE COMMITTEE OF THE COUNCIL

Jewett, F. B., chairman
Bowman, Isaiah
Clark, W. M.
Harrison, R. G.[2]
Hunsaker, J. C.
Richards, A. N.
Wright, F. E.

SECTIONS

1. *Mathematics*

Stone, M. H., chairman (1946).
Albert, A. A.
Alexander, J. W.
Bateman, Harry
Bell, E. T.
Birkhoff, G. D.
Blichfeldt, H. F.
Bliss, G. A.
Coble, A. B.
Eisenhart, L. P.
Evans, G. C.
Jackson, Dunham
Kasner, Edward
Lefschetz, Solomon
Miller, G. A.
Moore, R. L.
Morse, Marston
Murnaghan, F. D.
Neumann, J. von
Osgood, W. F.
Ritt, J. F.
Thomas, T. Y.
Vandiver, H. S.
Veblen, Oswald
Walsh, J. L.
Weyl, Hermann

2. *Astronomy*

Russell, H. N., chairman (1944).
Abbot, C. G.
Adams, W. S.
Aitken, R. G.
Anderson, J. A.
Babcock, H. D.
Bowen, I. S.
Fleming, J. A.
Hubble, E. P.
King, A. S.
Leuschner, A. O.
Merrill, P. W.
Mitchell, S. A.
Moore, J. H.
Moulton, F. R.
Nicholson, S. B.
Ross, F. E.
Schlesinger, F.
Seares, F. H.
Shapley, Harlow
Slipher, V. M.
Stebbins, Joel
Struve, Otto
Trumpler, R. J.
Wright, W. H.

3. *Physics*

Birge, R. T., chairman (1945)
Anderson, C. D.
Beams, J. W.
Breit, Gregory
Bridgman, P. W.
Coblentz, W. W.
Compton, A. H.
Compton, K. T.
Coolidge, W. D.
Crew, Henry
Davis, Bergen
Davisson, C. J.
Dempster, A. J.
DuBridge, L. A.
Einstein, Albert
Epstein, P. S.
Houston, W. V.
Hull, A. W.
Ives, H. E.
Kemble, E. C.
Lauritsen, C. C.
Lawrence, E. O.
Lyman, Theodore
Mason, Max
Merritt, Ernest
Millikan, R. A.
Mulliken, R. S.
Oppenheimer, J. R.
Pierce, G. W.
Rabi, I. I.
Rossby, C.-G.
Saunders, F. A.
Slater, J. C.
Stewart, G. W.
Tate, J. T.
Van Vleck, J. H.
Webster, D. L.
Wilson, Edwin B.
Wood, R. W.

4. *Engineering*

Buckley, O. E., chairman (1944)
Adams, C. A.
Baekeland, L. H.
Briggs, L. J.
Bush, Vannevar
Cottrell, F. G.
Dunn, Gano
Durand, W. F.
Fletcher, Harvey
Foote, P. D.
Hoover, Herbert
Hovgaard, William
Hunsaker, J. C.
Jeffries, Zay
Jewett, F. B.
Karman, T. von
Kettering, C. F.
Lewis, W. K.
Loomis, A. L.
Merica, P. D.
Midgley, Thomas, Jr.
Slepian, Joseph
Timoshenko, Stephen
Whitehead, J. B.
Wright, Orville
Zworykin, V. K.

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[2] The constitution of the Academy provides that the chief executive officer of the National Research Council be a member of the Council of the Academy and also a member of the executive committee of the Council of the Academy, provided he be a member of the Academy.

5. *Chemistry*

Pauling, Linus, chairman (1944)
Adams, L. H.
Adams, Roger
Adkins, H. B.
Bachmann, W. E.
Bancroft, W. D.
Baxter, G. P.
Bogert, Marston T.
Bray, W. C.
Conant, J. B.
Fieser, L. F.
Giauque, W. F.
Gomberg, Moses
Hammett, L. P.
Harkins, W. D.
Hildebrand, J. H.
Hudson, C. S.
Hulett, G. A.
Ipatieff, V. N.
Jacobs, W. A.
Johnson, T. B.
Keyes, F. G.
Kirkwood, J. G.
Kistiakowsky, G. B.
Kraus, C. A.
Lamb, A. B.
Langmuir, Irving
Latimer, W. M.
Lind, S. C.
MacInnes, D. A.
Marvel, C. S.
Noyes, W. A., Jr.
Rodebush, W. H.
Small, L. F.
Tolman, R. C.
Urey, H. C.
Whitney, W. R.

6. *Geology*

Longwell, C. R., chairman (1945).
Allen, E. T.
Berkey, C. P.
Berry, E. W.
Blackwelder, Eliot
Bowen, N. L.
Bowman, Isaiah
Bucher, W. H.
Buddington, A. F.
Chamberlin, R. T.
Cross, Whitman
Daly, R. A.
Day, A. L.
Hewett, D. F
Johnson, D. W.
Keith, Arthur
Kelley, W. P.
Knopf, Adolph
Lawson, A. C.
Leith, C. K.
Leverett, Frank
Mead, W. J.
Mendenhall, W. C.
Merriam, J. C.
Palache, Charles
Reid, H. F.
Ruedemann, Rudolf
Scott, W. B.
Simpson, G. G.
Ulrich, E. O.
Vaughan, T. W.
Willis, Bailey
Wright, F. E.

7. *Botany*

Sinnott, E. W., chairman (1944).
Allen, C. E.
Bailey, I. W.
Bailey, L. H.
Blakeslee, A. F.
Campbell, D. H.
Chandler, W. H.
Cleland, R. E.
Couch, J. N.
Dodge, B. O.
Duggar, B. M.
Emerson, R. A.
Fernald, M. L.
Fred, E. B.
Harper, R. A.
Hoagland, D. R.
Jones, D. F.
Jones, L. R.
Kunkel, L. O.
Merrill, E. D.
Osterhout, W. J. V.
Robbins, W. J.
Sax, Karl
Stadler, L. J.
Stakman, E. C.
Thom, Charles
Trelease, William
Waksman, S. A.

8. *Zoology and Anatomy*

Corner, G. W., chairman (1946).
Barbour, Thomas
Bigelow, H. B.
Castle, W. E.
Chapman, F. M.
Child, C. M.
Conklin, E. G.
Danforth, C. H.
Davenport, C. B.
Detwiler, S. R.
Dobzhansky, Theodosius
Dunn, L. C.
Gregory, W. K.
Harrison, R. G.
Hartman, C. G.
Harvey, E. N.
Herrick, C. J.
Jacobs, M. H.
Jennings, H. S.
Kofoid, C. A.
Lewis, W. H.
Lillie, F. R.
McClung, C. E.
Mark, E. L.
Morgan, T. H.
Muller, H. J.
Painter, T. S.
Parker, G. H.
Patterson, J. T.
Riddle, Oscar
Smith, P. E.
Streeter, G. L.
Sturtevant, A. H.
Sumner, F. B.
Taliaferro, W. H.
Taylor, C. V.
Wislocki, G. B.
Woodruff, L. L.
Wright, S. G.

9. *Physiology and Biochemistry*

Gasser, H. S., chairman (1945)
Bronk, D. W.
Cannon, W. B.
Carlson, A. J.
Chittenden, R. H.
Clark, W. M.
Clarke, H. T.
Cohn, E. J.
Cori, C. F.
Doisy, E. A.
DuBois, E. F.
Elvehjem, C. A.
Erlanger, Joseph
Evans, H. M.
Fenn, W. O.
Forbes, Alexander
Hastings, A. B.
Henderson, Yandell
Howell, W. H.
Hunt, Reid
McCollum, E. V.
MacNider, W. de B.
Marshall, E. K., Jr.
Michaelis, Leonor
Northrop, J. H.
Richards, A. N.
Rose, W. C.
Shaffer, P. A.
Sherman, H. C.
Stanley, W. M.
Van Slyke, D. D.
Vickery, H. B.

10. *Pathology and Bacteriology*

Opie, E. L., chairman (1945)
Avery, O. T.
Castle, W. B.
Cole, Rufus
Dochez, A. R.
Dubos, R. J.
Flexner, Simon
Goodpasture, E. W
Graham, E. A.
Heidelberger, Michael
Hektoen, Ludvig
Loeb, Leo
Longcope, W. T.
Meyer, K. F.
Minot, G. R.
Murphy, J. B.
Novy, F. G.
Rivers, T. M.
Robertson, O. H.
Rous, Peyton
Sabin, Florence R.
Shope, R. E.
Tyzzer, E. E.
Whipple, G. H.
Wolbach, S. B.

11. *Anthropology and Psychology*

Hunter, W. S., chairman (1944)
Angell, J. R.
Boring, E. G.
Carmichael, Leonard
Cattell, J. McKeen
Dewey, John
Hooton, E. A.
Hrdlička, Aleš
Hull, C. L.
Kidder, A. V.
Kroeber, A. L.
Lashley, K. S.
Lowie, R. H.
Miles, W. R.
Pillsbury, W. B.
Schultz, A. H.
Seashore, C. E.
Stone, C. P.
Stratton, G. M.
Swanton, J. R.
Terman, L. M.
Thorndike, E. L.
Thurstone, L. L.
Tolman, E. C.
Tozzer, A. M.
Wever, E. G.
Wissler, Clark
Woodworth, R. S.
Yerkes, R. M.

TEMPORARY NOMINATING GROUPS

(Designated by the Advisory Committee on Membership)

AGRICULTURAL SCIENCE

E. D. Merrill, chairman (1945)

Chemistry.—J. H. Hildebrand, W. H. Rodebush.
Geology.—Eliot Blackwelder, W. P. Kelley.
Botany.—I. W. Bailey, W. H. Chandler, B. M. Duggar, D. R. Hoagland, L. O. Kunkel, E. D. Merrill, W. J. Robbins, E. W. Sinnott, E. C. Stakman.
Zoology and anatomy.—W. H. Taliaferro, S. G. Wright.
Physiology and biochemistry.—C. A. Elvehjem, W. C. Rose, W. M. Stanley, H. B. Vickery.
Pathology and bacteriology.—R. J. Dubos, R. E. Shope, E. E. Tyzzer.

GEOPHYSICS

J. A. Fleming, chairman (1945)

Mathematics.—Harry Bateman, G. D. Birkhoff, F. D. Murnaghan.
Astronomy.—C. G. Abbot, J. A. Fleming, Harlow Shapley.
Physics.—P. W. Bridgman, A. H. Compton, Max Mason, C.-G. Rossby.
Engineering.—L. J. Briggs, Vannevar Bush, J. C. Hunsaker, T. von Karman.
Chemistry.—L. H. Adams, S. C. Lind.
Geology.—Isaiah Bowman, Arthur L. Day, Adolph Knopf, T. W. Vaughan, F. E. Wright.
Botany.—S. A. Waksman.
Zoology and anatomy.—H. B. Bigelow, F. R. Lillie.

4. STANDING COMMITTEES OF THE ACADEMY

ADVISORY COMMITTEE ON SCIENTIFIC PUBLICATION

(Temporary joint committee of Academy and Research Council)

Eisenhart, L. P., chairman
Breit, Gregory
Clark, W. Mansfield
Fletcher, Harvey
Fred, E. B.
Pegram, G. B.
Urey, H. C.
Weed, L. H.
Wever, E. G.

ALBERT NATIONAL PARK

Yerkes, R. M., chairman
Chapman, F. M.
Wissler, Clark

AUDITING COMMITTEE

Vaughan, T. W., chairman
Corner, G. W.
Cottrell, F. G.

BIOGRAPHICAL MEMOIRS

Streeter, G. L., chairman
Davenport, C. B.
Hrdlička, Aleš
Thorndike, E. L.
Wright, F. E.

BUILDINGS AND GROUNDS ADVISORY COMMITTEE (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

Brockett, Paul, chairman
Griggs, R. F.
Harrison, R. G.
Richards, A. N.
Wright, F. E.

CALENDAR

Wright, F. E., chairman
Dunn, Gano
Millikan, R. A.
Russell, H. N.

EXHIBITS (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

Wright, F. E., chairman.
Brockett, Paul, secretary.
Shapley, Harlow, member-at-large.
The chairman of each of the sections of the Academy.
The chairman of each of the divisions of the Research Council.

Executive committee on exhibits

Wright, F. E., chairman
Brockett, Paul, secretary
Day, A. L.
Harrison, R. G.
Merriam, J. C.

FINANCE COMMITTEE

The treasurer of the Academy, chairman ex officio (J. C. Hunsaker).
The president of the Academy, ex officio (F. B. Jewett).
The chairman of the National Research Council, ex officio (R. G. Harrison).
Bowman, Isaiah
Bush, Vannevar
Robbins, W. J.

LIBRARY

Hudson, C. S., chairman
Adams, W. S.
Brockett, Paul
Cattell, J. McK.
Compton, K. T.
Harkins, W. D.
Henderson, Yandell
Parker, G. H.
Scott, W. B.

Subcommittee on the library

Hudson, C. S., chairman
Coblentz, W. W., vice chairman
Streeter, G. L.
Swanton, J. R.

PROCEEDINGS, EDITORIAL BOARD

Bucher, W. H.
Cannon, W. B.
Carmichael, L.
Clark, W. M.
Day, A. L.
Durand, W. F.
Elvehjem, C. A.
Eisenhart, L. P.
Goodpasture, E. W.
Griggs, R. F.
Harrison, R. G.
Jewett, F. B.
Lamb, A. B.
Lawrence, E. O.
Miles, W. R.
Osterhout, W. J. V.
Seares, F. H.
Weed, L. H.
Wright, F. E.
Wright, Sewall

PUBLICATIONS OF THE ACADEMY

The president of the Academy (F. B. Jewett).
The home secretary of the Academy (F. E. Wright).
Conklin, E. G.

REVISION OF THE CONSTITUTION

Wilson, Edwin B., chairman
Day, A. L.
Dunn, Gano
Merriman, J. C.
Morgan, T. H.

WEIGHTS, MEASURES, AND COINAGE

Dunn, Gano, chairman
Baxter, G. P.
Wood, R. W.

5. TRUST FUNDS OF THE ACADEMY

ALEXANDER DALLAS BACHE FUND

[$60,000]

Researches in physical and natural science

Board of directors

Wilson, Edwin B., chairman.
Osterhout, W. J. V.
Wright, Sewall.

JAMES CRAIG WATSON FUND

[$25,000]

Watson medal and the promotion of astronomical research

Trustees

Leuschner, A. O., chairman.
Ross, F. E.
Seares, F. H.

WATSON MEDAL AWARDS

Gould, B. A., 1887.
Schoenfeld, Ed., 1889.
Auwers, Arthur, 1891.
Chandler, S. C., 1894.
Gill, Sir David, 1899.
Kapteyn, J. C., 1913.
Leuschner, A. O., 1915.
Charlier, C. V. L., 1924.
de Sitter, Willem, 1929.
Brown, Ernest William, 1936.

HENRY DRAPER FUND

[$10,000]

Draper medal and investigations in astronomical physics

Committee

Moore, J. H., chairman (1945).
King, A. S. (1947).
Stebbins, Joel (1948).
Struve, Otto (1944).
Trumpler, R. J. (1946).

HENRY DRAPER MEDAL AWARDS

Langley, S. P. 1886.
Pickering, E. C., 1888.
Rowland, H. A., 1890.
Vogel, H. K., 1893.
Keeler, J. E., 1899.
Huggins, Sir Wm., 1901.
Hale, George E., 1904.
Campbell, W. W. 1906.
Abbot, C. G., 1910.
Deslandres, H., 1913.
Stebbins, Joel, 1915.
Michelson, A. A., 1916.
Adams, W. S., 1918.
Fabry, Charles, 1919.
Fowler, Alfred, 1920.
Zeeman, Pieter, 1921.
Russell, H. N., 1922.
Eddington, Sir Arthur Stanley, 1924.
Shapley, Harlow, 1926.
Wright, William Hammond, 1928.
Cannon, Annie Jump, 1931.
Slipher, V. M., 1932.
Plaskett, John Stanley, 1934.
Mees, C. E. Kenneth, 1936.
Wood, Robert Williams, 1940.
Bowen, Ira Sprague, 1942.

J. Lawrence Smith Fund

[$10,000]

J. Lawrence Smith medal and investigations of meteoric bodies

Committee

Fleming, J. A., chairman (1945).
Longwell, C. R., (1948).
Mitchell, S. A. (1947).
Nicholson, S. B. (1946).
Palache, Charles (1944).

J. LAWRENCE SMITH MEDAL AWARDS

Newton, H. A., 1888.
Merrill, George P., 1922.

Barnard Medal for Meritorious Service to Science [3]

Discoveries in physical or astronomical science or novel application of science to purposes beneficial to the human race

Committee

Whitney, W. R., chairman
Davis, Bergen
Day, Arthur L.
Hubble, Edwin
Tolman, R. C.

BARNARD MEDAL AWARDS

Rayleigh, Lord, 1895.
Röntgen, Wilhelm Conrad, 1900.
Becquerel, Henri, 1905.
Rutherford, Baron: Ernest Rutherford, 1909.
Bragg, Sir William H., and Bragg, W. L., 1914.
Einstein, Albert, 1921.
Bohr, Neils, 1925.
Heisenberg, Werner, 1930.
Hubble, Edwin, 1935.
Joliot, F., and Curie, Irène, 1940.

Benjamin Apthorp Gould Fund

[$20,000]

Researches in astronomy

Board of directors

Moulton, F. R., chairman
Adams, W. S.
Schlesinger, Frank

Wolcott Gibbs Fund

[$5, 545. 50]

Chemical research

Board of directors

Baxter, G. P., chairman
Adams, Roger
Kraus, C. A.

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[3] Every 5 years the committee recommends the person whom they consider most deserving of the medal, and upon approval by the Academy, the name of the nominee is forwarded to the trustees of Columbia University who administer the Barnard medal fund.

CYRUS B. COMSTOCK FUND

[$15,000]

Prize awarded every 5 years for most important discovery or investigation in electricity, magnetism, and radiant energy, or to aid worthy investigations in those subjects

Committee

Lawrence, E. O., chairman (1944)
Bridgman, P. W. (1945)
Davisson, C. J. (1946)
Dunn, Gano (1947)
Loomis, A. L. (1948)

COMSTOCK PRIZE AWARDS

Millikan, R. A., 1913.
Barnett, S. J., 1918.
Duane, William, 1923.
Davisson, C. J., 1928.
Bridgman, P. W., 1933.
Lawrence, E. O., 1938.

MARSH FUND

[$20,000]

Original research in the natural sciences

Committee

Fred, E. B., chairman (1945).
Blackwelder, Eliot (1944).
Mendenhall, W. C. (1946).
Painter, T. S. (1948).
Simpson, G. G. (1947).

AGASSIZ FUND

[$50,000]

General uses of the Academy

MURRAY FUND

[$10,000]

Agassiz medal for original contributions in the science of oceanography

Committee

Daly, R. A., chairman (1945).
Barbour, Thomas (1944).
Parker, G. H. (1946).

AGASSIZ MEDAL AWARDS

Hjort, Johan, 1913.
Albert I, Prince of Monaco, 1918.
Sigsbee, C. D., 1920.
Pettersson, Otto Sven, 1924.
Bjerknes, Vilhelm, 1926.
Weber, Max, 1927.
Ekman, Vagn Walfrid, 1928.
Gardiner, J. Stanley, 1929.
Schmidt, Johannes, 1930.
Bigelow, Henry Bryant, 1931.
Defant, Albert, 1932.
Helland-Hansen, Bjorn, 1933.
Gran, Haakon Hasberg, 1934.
Vaughan, T. Wayland, 1935.
Knudsen, Martin, 1936.
Allen, Edgar Johnson, 1937.
Sverdrup, Harald Ulrik, 1938.
Lillie, Frank Rattray, 1939.
Iselin, Columbus, II, 1942.

MARCELLUS HARTLEY FUND

[$1,200]

Medal for eminence in the application of science to the public welfare

Committee

Whitehead, J. B., chairman (1944).
Compton, K. T. (1944).
Durand, W. F. (1945).
Ives, H E. (1946).
Robbins, W. J. (1945).
Slepian, Joseph (1946).

PUBLIC WELFARE MEDAL AWARDS

(In memory of Marcellus Hartley)

Goethals, G. W., 1914.
Gorgas, W. C., 1914.
Abbe, Cleveland, 1916.
Pinchot, Gifford, 1916.
Stratton, S. W., 1917.
Hoover, Herbert, 1920.
Stiles, C. W., 1921.
Chapin, Charles V., 1928.
Mather, Stephen Tyng, 1930.
Rose, Wickliffe, 1931.
Park, William Hallock, 1932.
Fairchild, David, 1933.
Vollmer, August, 1934.
Russell, F. F., 1935.
Cumming, Hugh S., 1935.
Whitney, Willis Rodney, 1937.
Hoover, John Edgar, 1939.
Rockefeller, John Davison, Jr., 1943.

DANIEL GIRAUD ELLIOT FUND

[$8,000]

Medal and honorarium for most meritorious work in zoology or paleontology published each year

Committee

Gregory, W. K., chairman
Barbour, Thomas
Sturtevant, A. H.

DANIEL GIRAUD ELLIOT MEDAL AWARDS

Chapman, F. M., 1917.
Beebe, William, 1918.
Ridgway, Robert, 1919.
Abel, Othenio, 1920.
Dean, Bashford, 1921.
Wheeler, William Morton, 1922.
Canu, Ferdinand, 1923.
Breuil, Henri, 1924.
Wilson, Edmund B., 1925.
Stensiö, Erik A.: Son, 1927.
Seton, Ernest Thompson, 1928.
Osborn, Henry Fairfield, 1929.
Coghill, George Ellett, 1930.
Black, Davidson, 1931.
Chapin, James P., 1932.
Lull, Richard Swann, 1933.
Painter, Theophilus Shickel, 1934.
Colbert, Edwin H., 1935.
Murphy, Robert Cushman, 1936.

BILLINGS FUND

[$23,748.88]

For partial support of the Proceedings or for such other purposes as the Academy may select

MARY CLARK THOMPSON FUND

[$10,000]

Medal for most important services to geology and paleontology

Committee

Vaughan, T. W., chairman (1944).
Bucher, W. H., (1946).
Mead, W. J., (1945).

MARY CLARK THOMPSON MEDAL AWARDS

Walcott, Charles Doolittle, 1921.
Margerie, Emm. de, 1923.
Clarke, John Mason, 1925.
Smith, James Perrin, 1928.
Scott, William Berryman, 1930.
Ulrich, Edward Oscar, 1930.
White, David, 1931.
Bather, Francis Arthur, 1932.
Schuchert, Charles, 1934.
Grabau, Amadeus William, 1936.
Woodward, Sir Arthur Smith, 1942.

JOSEPH HENRY FUND

[$44,163.50]

To assist meritorious investigators, especially in the direction of original research

Committee

Slater, J. C., chairman, (1944.)
Bronk, D. W., (1948).
McClung, C. E., (1947).
Miles, W. R., (1945).
Tolman, R. C., (1946).

GEORGE TRUE NEALLEY FUND

[$19,555.55]

For the general purposes of the Academy

CHARLES DOOLITTLE WALCOTT FUND

[$5,000]

For stimulation of research in pre-Cambrian or Cambrian life by award of a medal and honorarium every 5 years

Board of trustees

Vaughan, T. W., temporary chairman.
Abbot, C. G. (representing the Smithsonian Institution).
Pruvost, Pierre (representing the Institut de France).
Jones, O. T. (representing the Royal Society of London).
Ulrich, E. O.

CHARLES DOOLITTLE WALCOTT MEDAL AWARDS

White, David, 1934.
Westergaard, A. H., 1939.

JOHN J. CARTY FUND

[$25,000]

Medal and monetary award, not oftener than once in every 2 years, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy

Committee

Buckley, O. E., chairman (1946).
Adams, Roger, (1947).
Bowman, Isaiah, (1948).
Bush, Vannevar, (1945).
Merrill, E. D., (1944).

JOHN J. CARTY MEDAL AWARDS

Carty, John J., 1932.
Wilson, Edmund Beecher, 1936.
Bragg, Sir William, 1939.
Conklin, E. G., 1943.

CARNEGIE ENDOWMENT FUND

[$3,550,000]

For the purposes of the National Academy of Sciences and National Research Council

NATIONAL SCIENCE FUND

Board of directors

Ex officio

The president of the Academy (Frank B. Jewett).
The treasurer of the Academy (Jerome C. Hunsaker).
The chairman of the Research Council (Ross G. Harrison).
The president of the American Association for the Advancement of Science (Arthur H. Compton).

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Winthrop W. Aldrich.
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John W. Davis.
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Carlton J. H. Hayes.
Archibald MacLeish.
Harvey S. Mudd.
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Herbert Hoover.
Ernest O. Lawrence.
Frank R. Lillie.
Robert A. Millikan.
Alfred N. Richards.
William J. Robbins.
Harlow Shapley.
George H. Whipple.

Chairman of the board: William J. Robbins.
Executive secretary of the National Science Fund: Howland H. Sargeant.
Office of the National Science Fund: 515 Madison Avenue, New York City.

6. MEMBERS OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1943

	Elected
Abbot, Charles Greeley, Smithsonian Institution, Washington 25, D. C.	1915
Adams, Comfort Avery, The Edward G. Budd Manufacturing Co., Philadelphia 32, Pa	1930
Adams, Leason Heberling, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton St., Washington 8, D. C	1943
Adams, Roger, University of Illinois, Urbana, Ill	1929
Adams, Walter Sydney, Mount Wilson Observatory, Pasadena 4, Calif	1917
Adkins, Homer Burton, 369 Chemistry Bldg., University of Wisconsin, Madison 6, Wis	1942
Aitken, Robert Grant, 1109 Spruce St., Berkeley 7, Calif	1918
Albert, Abraham Adrian, Department of Mathematics, University of Chicago, Chicago 37, Ill	1943
Alexander, James Waddell, Princeton, N. J	1930
Allen, Charles Elmer, room 103, Biology Bldg., University of Wisconsin, Madison 6, Wis	1924
Allen, Eugene Thomas, The Irvington, 135 Pleasant St., Arlington 74, Mass	1930
Anderson, Carl David, California Institute of Technology, Pasadena 4, Calif	1938
Anderson, John August, until Sept. 1, 1943, Mount Wilson Observatory, Pasadena 4, Calif.; after Sept. 1, 1943, P. O. Box 332, Pasadena 17, Calif	1928
Angell, James Rowland, 155 Blake Rd., New Haven 5, Conn	1920
Avery, Oswald Theodore, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1933
Babcock, Harold Delos, Mount Wilson Observatory, Pasadena 4, Calif	1933
Bachmann, Werner Emmanuel, University of Michigan, Ann Arbor, Mich	1941
Baekeland, Leo Hendrik, 30 East 42d St., New York 17, N. Y	1936
Bailey, Irving Widmer, Biological Laboratories, Harvard University, Cambridge 38, Mass	1929
Bailey, Liberty Hyde, Bailey Hortorium, Ithaca, N. Y	1917
Bancroft, Wilder Dwight, 7 East Ave., Ithaca, N. Y	1920
Barbour, Thomas, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1933
Bateman, Harry, California Institute of Technology, Pasadena 4, Calif	1930
Baxter, Gregory Paul, T. Jefferson Coolidge, Jr., Memorial Laboratory, Cambridge 38, Mass	1916
Beams, Jesse Wakefield, Rouss Physical Laboratory, University of Virginia, Charlottesville, Va	1943
Bell, Eric Temple, California Institute of Technology, Pasadena 4, Calif	1927
Berkey, Charles Peter, Department of Geology, Columbia University, New York 27, N. Y	1927
Berry, Edward Wilbur, Johns Hopkins University, Baltimore 18, Md	1922
Bigelow, Henry Bryant, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1931
Birge, Raymond Thayer, University of California, Berkeley 4, Calif	1932
Birkhoff, George David, 987 Memorial Drive, Cambridge 38, Mass	1918
Blackwelder, Eliot, P. O. Box N, Stanford University, Calif	1936

6. *Members of the National Academy of Sciences—Continued*

	Elected
Blakeslee, Albert Francis, Department of Botany, Smith College, Northampton, Mass	1929
Blichfeldt, Hans Frederik, 520 West Crescent Drive, Palo Alto, Calif	1920
Bliss, Gilbert Ames, University of Chicago, Chicago 37, Ill	1916
Bogert, Marston Taylor, 566 Chandler Laboratories, Columbia University, New York 27, N. Y	1916
Boring, Edwin Garrigues, Emerson Hall, Harvard University, Cambridge 38, Mass	1932
Bowen, Ira Sprague, California Institute of Technology, Pasadena 4, Calif	1936
Bowen, Norman Levi, Rosenwald Hall, University of Chicago, Chicago 37, Ill	1935
Bowman, Isaiah, Johns Hopkins University, Baltimore 18, Md	1930
Bray, William Crowell, Department of Chemistry, University of California, Berkeley 4, Calif	1924
Breit, Gregory, Ballistic Research Laboratory, Aberdeen Proving Ground, Md	1939
Bridgman, Percy Williams, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1918
Briggs, Lyman James, National Bureau of Standards, Washington 25, D. C.	1942
Bronk, Detlev Wulf, Johnson Research Foundation, University of Pennsylvania, Philadelphia 4, Pa	1939
Bucher, Walter Hermann, Department of Geology, Columbia University, New York 27, N. Y	1938
Buckley, Oliver Ellsworth, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1937
Buddington, Arthur Francis, Princeton University, Princeton, N. J	1943
Bush, Vannevar, Carnegie Institution of Washington, Washington 5, D. C.	1934
Campbell, Douglas Houghton, Stanford University, Stanford University, Calif	1910
Cannon, Walter Bradford, 20 Prescott St., Cambridge 38, Mass	1914
Carlson, Anton Julius, University of Chicago, Chicago 37, Ill	1920
Carmichael, Leonard, Tufts College, Medford 55, Mass	1943
Castle, William Bosworth, Boston City Hospital, Boston 18, Mass	1939
Castle, William Ernest, 421 Spruce St., Berkeley 8, Calif	1915
Cattell, James McKeen, The Science Press, Lancaster, Pa	1901
Chamberlin, Rollin Thomas, University of Chicago, Chicago 37, Ill	1940
Chandler, William Henry, College of Agriculture, University of California, 405 Hilgard Ave., Los Angeles 24, Calif	1943
Chapman, Frank Michler, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1921
Child, Charles Manning, Jordan Hall, Stanford University, Stanford University, Calif	1935
Chittenden, Russell Henry, 83 Trumbull St., New Haven 11, Conn	1890
Clark, William Mansfield, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1928
Clarke, Hans Thacher, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1942
Cleland, Ralph Erskine, Indiana University, Bloomington, Ind	1942
Coble, Arthur Byron, University of Illinois, Urbana, Ill	1924
Coblentz, William Weber, National Bureau of Standards, Washington 25, D. C	1930
Cohn, Edwin Joseph, Harvard Medical School, Boston 15, Mass	1943
Cole, Rufus, Mt. Kisco, N. Y	1922
Compton, Arthur Holly, University of Chicago, Chicago 37, Ill	1927
Compton, Karl Taylor, 111 Memorial Drive, Cambridge 39, Mass	1924
Conant, James Bryant, Harvard University, Cambridge 38, Mass	1929
Conklin, Edwin Grant, Princeton University, Princeton, N. J	1908
Coolidge, William David, General Electric Co., Schenectady 5, N. Y	1925
Cori, Carl Ferdinand, School of Medicine, Washington University, St. Louis 10, Mo	1940
Corner, George Washington, Department of Embryology, Carnegie Institution of Washington, Wolfe and Madison Sts., Baltimore 5, Md	1940
Cottrell, Frederick Gardner, 3904 Ingomar St. NW., Washington 15, D. C.	1939
Couch, John Nathaniel, University of North Carolina, Chapel Hill, N. C.	1943
Crew, Henry, 620 Library Place, Evanston, Ill	1909
Cross, Charles Whitman, 101 East Kirke St., Chevy Chase 15, Md	1908

6. *Members of the National Academy of Sciences—Continued*

	Elected
Daly, Reginald Aldworth, 23 Hawthorn St., Cambridge 38, Mass	1925
Danforth, Charles Haskell, Department of Anatomy, Stanford University, Stanford University, Calif	1942
Davenport, Charles Benedict, Cold Spring Harbor, Long Island, N. Y	1912
Davis, Bergen, Columbia University, New York 27, N. Y	1929
Davisson, Clinton Joseph, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1929
Day, Arthur Louis, 9113 Old Georgetown Road, Bethesda 14, Md	1911
Dempster, Arthur Jeffrey, University of Chicago, Chicago 37, Ill	1937
Detwiler, Samuel Randall, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1932
Dewey, John, Columbia University, New York 27, N. Y	1910
Dobzhansky, Theodosius, Department of Zoology, Columbia University, New York 27, N. Y	1943
Dochez, Alphonse Raymond, Columbia University, Presbyterian Hospital, 620 West 168th St., New York 32, N. Y	1933
Dodge, Bernard Ogilvie, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1933
Doisy, Edward Adelbert, St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis 4, Mo	1938
DuBois, Eugene Floyd, Cornell University Medical College, 1300 York Ave., New York 21, N. Y	1933
Dubos, René Jules, Harvard University Medical School, Boston 15, Mass	1941
DuBridge, Lee Alvin, Radiation Laboratory, Massachusetts Institute of Technology, Cambridge 39, Mass	1943
Duggar, Benjamin Minge, Biology Building, University of Wisconsin, Madison 6, Wis	1927
Dunn, Gano, 80 Broad St., New York 4, N. Y	1919
Dunn, Leslie Clarence, Columbia University, New York 27, N. Y	1943
Durand, William Frederick, Stanford University, Stanford University, Calif	1917
Einstein, Albert, The Institute for Advanced Study, Princeton, N. J	1942
Eisenhart, Luther Pfahler, Princeton, N. J	1922
Elvehjem, Conrad Arnold, Department of Biochemistry, University of Wisconsin, Madison 6, Wis	1942
Emerson, Rollins Adams, Cornell University, Ithaca, N. Y	1927
Epstein, Paul Sophus, 1484 Oakdale St., Pasadena 4, Calif	1930
Erlanger, Joseph, Washington University School of Medicine, 4580 Scott Ave., St. Louis 10, Mo	1922
Evans, Griffith Conrad, Department of Mathematics, University of California, Berkeley 4, Calif	1933
Evans, Herbert McLean, Institute of Experimental Biology, University of California, Berkeley 4, Calif	1927
Fenn, Wallace Osgood, School of Medicine and Dentistry, University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1943
Fernald, Merritt Lyndon, Gray Herbarium, Harvard University, Cambridge 38, Mass	1935
Fieser, Louis Frederick, Harvard University, Cambridge 38, Mass	1940
Fleming, John Adam, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd., Washington 15, D. C	1938
Fletcher, Harvey, Bell Telephone Laboratories, Murray Hill, N. J	1935
Flexner, Simon, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1908
Foote, Paul Darwin, Gulf Research & Development Co., P. O. Drawer 2038, Pittsburgh 30, Pa	1943
Forbes, Alexander, until Oct. 10, 1943, Harvard Medical School, Boston 15, Mass.; after Oct. 10, 1943, 1600 16th St., Washington 9, D. C	1936
Fred, Edwin Broun, National Academy of Sciences, 2101 Constitution Ave., Washington 25, D. C	1931
Gasser, Herbert Spencer, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Giauque, William Francis, University of California, Berkeley, 4, Calif	1936
Gomberg, Moses, University of Michigan, Ann Arbor, Mich	1914
Goodpasture, Ernest William, Vanderbilt University, Nashville 4, Tenn	1937
Graham, Evarts Ambrose, Barnes Hospital, 600 South Kingshighway, St. Louis 10, Mo	1941

6. *Members of the National Academy of Sciences—Continued*

	Elected
Gregory, William King, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1927
Hammett, Louis Plack, Explosives Research Laboratory, 4800 Forbes St., Pittsburgh 13, Pa	1943
Harkins, William Draper, University of Chicago, Chicago 37, Ill	1921
Harper, Robert Almer, Route 5, Bedford, Va	1911
Harrison, Ross Granville, Osborn Zoological Laboratory, Yale University, New Haven, Conn	1913
Hartman, Carl Gottfried, Department of Zoology, University of Illinois, Urbana, Ill	1937
Harvey, Edmund Newton, Guyot Hall, Princeton University, Princeton, N. J	1934
Hastings, Albert Baird, Department of Biological Chemistry, Harvard University Medical School, Boston 15, Mass	1939
Heidelberger, Michael, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1942
Hektoen, Ludvig, Chicago Tumor Institute, 21 West Elm St., Chicago 10, Ill	1918
Henderson, Yandell, 440 Prospect St., New Haven 11, Conn	1923
Herrick, Charles Judson, 236 Morningside Dr., SE., Grand Rapids 6, Mich	1918
Hewett, Donnel Foster, U. S. Geological Survey, Washington 25, D. C	1937
Hildebrand, Joel Henry, Gilman Hall, University of California, Berkeley 4, Calif	1929
Hoagland, Dennis Robert, Division of Plant Nutrition, University of California, Berkeley 4, Calif	1934
Hooton, Earnest Albert, Peabody Museum, Harvard University, Cambridge 38, Mass	1935
Hoover, Herbert Clark, Palo Alto, Calif	1922
Houston, William Vermillon, California Institute of Technology, Pasadena 4, Calif	1943
Hovgaard, William, Hotel Margaret, Columbia Heights, Brooklyn 2, N. Y	1929
Howell, William Henry, 112 St. Dunstan's Rd., Baltimore 12, Md	1905
Hrdlicka, Ales, U. S. National Museum, Washington 25, D. C	1921
Hubble, Edwin Powell, Mount Wilson Observatory, Pasadena 4, Calif	1927
Hudson, Claude Silbert, National Institute of Health, Bethesda 14, Md	1927
Hulett, George Augustus, 44 Washington Rd., Princeton, N. J	1922
Hull, Albert Wallace, Research Laboratory, General Electric Co., Schenectady 5, N. Y	1929
Hull, Clark Leonard, Institute of Human Relations, Yale University, 333 Cedar St., New Haven, Conn	1936
Hunsaker, Jerome Clark, Massachusetts Institute of Technology, Cambridge 39, Mass	1935
Hunt, Reid, Harvard Medical School, Boston 15, Mass	1919
Hunter, Walter Samuel, Brown University, Providence 12, R. I	1935
Ipatieff, Vladimir Nikolaevich, Universal Oil Products Co., Riverside, Ill	1939
Ives, Herbert Eugene, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1933
Jackson, Dunham, University of Minnesota, Minneapolis 14, Minn	1935
Jacobs, Merkel Henry, School of Medicine, University of Pennsylvania, Philadelphia 4, Pa	1939
Jacobs, Walter Abraham, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1932
Jeffries, Zay, General Electric Co., Nela Park, Cleveland 12, Ohio	1939
Jennings, Herbert Spencer, Department of Zoology, University of California, Los Angeles 24, Calif	1914
Jewett, Frank Baldwin, American Telephone & Telegraph Co., 195 Broadway, New York 7, N. Y	1918
Johnson, Douglas Wilson, Columbia University, New York 27, N. Y	1932
Johnson, Treat Baldwin, Bethwood, Amity Rd., Bethany, R. F. D. 1, New Haven, Conn	1919
Jones, Donald Forsha, Box 1106, Department of Genetics, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1939
Jones, Lewis Ralph, Department of Plant Pathology, University of Wisconsin, Madison 6, Wis	1920
Karman, Theodore von, California Institute of Technology, Pasadena 4, Calif	1938
Kasner, Edward, Columbia University, New York 27, N. Y	1917

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6. *Members of the National Academy of Sciences—Continued*

	Elected
Keith, Arthur, U. S. Geological Survey, Washington 25, D. C	1928
Kelley, Walter Pearson, College of Agriculture, University of California, Berkeley 4, Calif	1943
Kemble, Edwin Crawford, the Physics Laboratories, Harvard University, Cambridge 38, Mass	1931
Kettering, Charles Franklin, General Motors Corporation, Detroit 2, Mich	1928
Keyes, Frederick George, Massachusetts Institute of Technology, Cambridge 39, Mass	1930
Kidder, Alfred Vincent, 10 Frisbie Place, Cambridge 38, Mass	1936
King, Arthur Scott, Mount Wilson Observatory, Pasadena 4, Calif	1941
Kirkwood, John Gamble, Baker Laboratory, Cornell University, Ithaca, N. Y	1942
Kistiakowsky, George Bogdan, 245 Melwood St., Pittsburgh 13, Pa	1939
Knopf, Adolph, Yale University, New Haven, Conn	1931
Kofoid, Charles Atwood, University of California, Berkeley 4, Calif	1922
Kraus, Charles August, Brown University, Providence 12, R. I	1925
Kroeber, Alfred L., University of California, Berkeley 4, Calif	1928
Kunkel, Louis Otto, Rockefeller Institute for Medical Research, Princeton, N. J	1932
Lamb, Arthur Becket, Chemical Laboratory, Harvard University, Cambridge 38, Mass	1924
Langmuir, Irving, General Electric Co., Schenectady 5, N. Y	1918
Lashley, Karl Spencer, Yerkes Laboratories of Primate Biology, Orange Park, Fla	1930
Latimer, Wendell Mitchell, University of California, Berkeley 4, Calif	1940
Lauritsen, Charles Christian, California Institute of Technology, Pasadena 4, Calif	1941
Lawrence, Ernest Orlando, Radiation Laboratory, University of California, Berkeley 4, Calif	1934
Lawson, Andrew Cowper, University of California, Berkeley 4, Calif	1924
Lefschetz, Solomon, 129 Broadmead St., Princeton, N. J	1925
Leith, Charles Kenneth, University of Wisconsin, Madison 6, Wis	1920
Leuschner, Armin Otto, Students' Observatory, University of California, Berkeley 4, Calif	1913
Leverett, Frank, 1724 South University Ave., Ann Arbor, Mich	1929
Lewis, Warren Harmon, the Wistar Institute of Anatomy and Biology, Philadelphia 4, Pa	1936
Lewis, Warren Kendall, Massachusetts Institute of Technology, Cambridge 39, Mass	1938
Lillie, Frank Rattray, 5801 Kenwood Ave., Chicago 37, Ill	1915
Lind, Samuel Colville, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1930
Loeb, Leo, 40 Crestwood Drive, St. Louis 5, Mo	1937
Longcope, Warfield Theobald, Johns Hopkins Hospital, Baltimore 5, Md	1943
Longwell, Chester Ray, Kirtland Hall, Yale University, New Haven, Conn	1935
Loomis, Alfred Lee, the Loomis Laboratory, The Tower, Tuxedo Park, N. Y	1941
Lowie, Robert Harry, University of California, Berkeley 4, Calif	1931
Lyman, Theodore, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1917
McClung, Clarence Erwin, University of Pennsylvania, Philadelphia 4, Pa	1920
McCollum, Elmer Verner, School of Hygiene and Public Health, 615 North Wolfe St., Baltimore 5, Md	1920
MacInnes, Duncan Arthur, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1937
MacNider, William deBerniere, University of North Carolina, Chapel Hill, N. C	1938
Mark, Edward Laurens, 109 Irving St., Cambridge 38, Mass	1903
Marshall, Eli Kennerly, Jr., School of Medicine, Johns Hopkins University, 710 North Washington St., Baltimore 5, Md	1943
Marvel, Carl Shipp, Department of Chemistry, University of Illinois, Urbana, Ill	1938
Mason, Max, California Institute of Technology, Pasadena 4, Calif	1923

6. *Members of the National Academy of Sciences—Continued*

	Elected
Mead, Warren Judson, Massachusetts Institute of Technology, Cambridge 39, Mass	1939
Mendenhall, Walter Curran, 9 E. Lenox St., Chevy Chase 15, Md	1932
Merica, Paul Dyer, 67 Wall St., New York 5, N. Y	1942
Merriam, John Campbell, care of Department of Geological Sciences, California Institute of Technology, Pasadena 4, Calif	1918
Merrill, Elmer Drew, Arnold Aboretum, Jamaica Plain, Mass	1923
Merrill, Paul Willard, Mount Wilson Observatory, Pasadena 4, Calif	1929
Merritt, Ernest George, 1 Grove Place, Ithaca, N. Y	1914
Meyer, Karl Friederich, George Williams Hooper Foundation, University of California Medical Center, San Francisco 22, Calif	1940
Michaelis, Leonor, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1943
Midgley, Thomas, Jr., Worthington, Ohio	1942
Miles, Walter Richard, Yale University School of Medicine, 333 Cedar St., New Haven, Conn	1933
Miller, George Abram, 1203 W. Illinois St., Urbana, Ill	1921
Millikan, Robert Andrews, California Institute of Technology, Pasadena 4, Calif	1915
Minot, George Richards, Thorndike Memorial Laboratory, Boston City Hospital, Boston 18, Mass	1937
Mitchell, Samuel Alfred, Leander McCormick Observatory, University Station, Charlottesville, Va	1933
Moore, Joseph Haines, Lick Observatory, Mount Hamilton, Calif	1931
Moore, Robert Lee, University of Texas, Austin 12, Tex	1931
Morgan, Thomas Hunt, California Institute of Technology, Pasadena 4, Calif	1909
Morse, Harold Marston, Institute for Advanced Study, Princeton, N. J	1932
Moulton, Forest Ray, Smithsonian Institution, Washington 25, D. C	1910
Muller, Hermann Joseph, Department of Biology, Amherst College, Amherst, Mass	1931
Mulliken, Robert Sanderson, University of Chicago, Chicago 37, Ill	1936
Murnaghan, Francis Dominic, Johns Hopkins University, Baltimore 18, Md	1942
Murphy, James Bumgardner, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1940
Neumann, John von, Institute for Advanced Study, Princeton, N. J	1937
Nicholson, Seth Barnes, Mount Wilson Observatory, Pasadena 4, Calif	1937
Northrop, John Howard, Rockefeller Institute for Medical Research, Princeton, N. J	1934
Novy, Frederick George, 721 Forest Ave., Ann Arbor, Mich	1924
Noyes, William Albert, Jr., Department of Chemistry, University of Rochester, Rochester 3, N. Y	1943
Opie, Eugene Lindsay, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1923
Oppenheimer, J. Robert, University of California, Berkeley 4, Calif	1941
Osgood, William Fogg, 10 Dorset Rd, Belmont 78, Mass	1904
Osterhout, Winthrop John Vanleuven, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1919
Painter, Theophilus Shickel, University of Texas, Austin 12, Tex	1938
Palache, Charles, Harvard University, Cambridge 38, Mass	1934
Parker, George Howard, Harvard Biological Laboratories, Divinity Ave., Cambridge 38, Mass	1913
Patterson, John Thomas, University of Texas, Austin 12, Tex	1941
Pauling, Linus, California Institute of Technology, Pasadena 4, Calif	1933
Pierce, George Washington, Cruft Laboratory, Harvard University, Cambridge 38, Mass	1920
Pillsbury, Walter Bowers, University of Michigan, Ann Arbor, Mich	1925
Rabi, Isidor Isaac, 97 Avon Hill St., Cambridge 20, Mass	1940
Reid, Harry Fielding, 608 Cathedral St., Baltimore 1, Md	1912
Richards, Alfred Newton, 291 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Pa	1927
Riddle, Oscar, Department of Genetics, Carnegie Institution of Washington, Cold Spring Harbor, Long Island, N. Y	1939
Ritt, Joseph Fels, Columbia University, New York 27, N. Y	1933

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6. *Members of the National Academy of Sciences—Continued*

	Elected
Rivers, Thomas Milton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Robbins, William Jacob, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1940
Robertson, Oswald Hope, Department of Medicine, University of Chicago, Chicago 37, Ill	1943
Rodebush, Worth Huff, University of Illinois, Urbana, Ill	1938
Rose, William Cumming, University of Illinois, Urbana, Ill	1936
Ross, Frank Elmore, Mount Wilson Observatory, Pasadena 4, Calif	1930
Rossby, Carl-Gustaf Arvid, Institute of Meteorology, University of Chicago, Chicago 37, Ill	1943
Rous, Francis Peyton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1927
Ruedemann, Rudolf, 161 Dana Ave., Albany 3, N. Y	1928
Russell, Henry Norris, Princeton University, Princeton, N. J	1918
Sabin, Florence Rena, 1333 East 10th Ave., Denver 3, Colo	1925
Saunders, Frederick Albert, South Hadley, Mass	1925
Sax, Karl, Harvard University, Cambridge 38, Mass	1941
Schlesinger, Frank, Bill Hill, Lyme, Conn	1916
Schultz, Adolph Hans, Johns Hopkins Medical School, Baltimore 5, Md	1939
Scott, William Berryman, Princeton University, Princeton, N. J	1906
Seares, Frederick Hanley, Mount Wilson Observatory, Pasadena 4, Calif	1919
Seashore, Carl Emil, State University of Iowa, Iowa City, Iowa	1922
Shaffer, Philip Anderson, Washington University Medical School, St Louis, 10, Mo	1928
Shapley, Harlow, Harvard College Observatory, Cambridge 38, Mass	1924
Sherman, Henry Clapp, Columbia University, New York 27, N. Y	1933
Shope, Richard Edwin, War Disease Control Station, Box 128 (Haute Ville P. O.), Quebec, Quebec, Canada	1940
Simpson, George Gaylord, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1941
Sinnott, Edmund Ware, Osborn Botanical Laboratory, Yale University, New Haven, Conn	1936
Slater, John Clarke, Massachusetts Institute of Technology, Cambridge 39, Mass	1932
Slepian, Joseph, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa	1941
Slipher, Vesto Melvin, Lowell Observatory, Flagstaff, Ariz	1921
Small, Lyndon Frederick, National Institute of Health, Bethesda 14, Md	1941
Smith, Philip Edward, College of Physicians and Surgeons, 630 West 168th Street, New York 32, N. Y	1939
Stadler, Lewis John, University of Missouri, Columbia, Mo	1938
Stakman, Elvin Charles, University Farm, St. Paul 8, Minn	1934
Stanley, Wendell Meredith, Rockefeller Institute for Medical Research, Princeton, N. J	1941
Stebbins, Joel, Washburn Observatory, Madison 6, Wis	1920
Stewart, George Walter, State University of Iowa, Iowa City, Iowa	1938
Stone, Calvin Perry, Stanford University, Stanford University, Calif	1943
Stone, Marshall Harvey, Harvard University, Cambridge 38, Mass	1938
Stratton, George Malcolm, University of California, Berkeley 4, Calif	1928
Streeter, George Linius, Johns Hopkins Medical School, 710 North Washington Street, Baltimore 5, Md	1931
Struve, Otto, Yerkes Observatory, Williams Bay, Wis	1937
Sturtevant, Alfred Henry, California Institute of Technology, Pasadena 4, Calif	1930
Sumner, Francis Bertody, Scripps Institution of Oceanography, La Jolla, Calif	1937
Swanton, John Reed, Bureau of American Ethnology, Smithsonian Institution, Washington 25, D. C	1932
Taliaferro, William Hay, University of Chicago, Chicago 37, Ill	1940
Tate, John Torrence, University of Minnesota, Minneapolis 14, Minn	1942
Taylor, Charles Vincent, Stanford University, Stanford University, Calif	1943
Terman, Lewis Madison, 761 Dolores, Stanford University, Calif	1928
Thom, Charles, Port Jefferson, N. Y	1937
Thomas, Tracy Yerkes, University of California, Los Angeles 24, Calif	1941

6. *Members of the National Academy of Sciences—Continued*

	Elected
Thorndike, Edward Lee, Teachers College, Columbia University, New York 27, N. Y	1917
Thurstone, Louis Leon, University of Chicago, Chicago 37, Ill	1938
Timoshenko, Stephen Prokop, Room 262, Engineering Building, Stanford, University, Calif	1940
Tolman, Edward Chace, Department of Psychology, University of California, Berkeley 4, Calif	1937
Tolman, Richard Chace, California Institute of Technology, Pasadena 4, Calif	1923
Tozzer, Alfred Marston, Peabody Museum, Harvard University, Cambridge 38, Mass	1942
Trelease, William, University of Illinois, Urbana, Ill	1902
Trumpler, Robert Julius, Berkeley Astronomical Department, University of California, Berkeley 4, Calif	1932
Tyzzer, Ernest Edward, Harvard University Medical School, Boston 15, Mass	1942
Ulrich, Edward Oscar, United States National Museum, Washington 25, D. C	1917
Urey, Harold Clayton, Columbia University, New York 27, N. Y	1935
Vandiver, Harry Shultz, University of Texas, Austin 12, Tex	1934
Van Slyke, Donald Dexter, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1921
Van Vleck, John Hasbrouck, Harvard University, Cambridge 38, Mass	1935
Vaughan, Thomas Wayland, 3333 P St., Washington 7, D. C	1921
Veblen, Oswald, The Institute for Advanced Study, Princeton, N. J	1919
Vickery, Hubert Bradford, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1943
Waksman, Selman Abraham, Agricultural Experiment Station, New Brunswick, N. J	1942
Walsh, Joseph Leonard, Harvard University, Cambridge 38, Mass	1936
Webster, David Locke, Physics Department, Room 385, Stanford University, Stanford University, Calif	1923
Wever, Ernest Glen, Princeton University, Princeton, N. J	1940
Weyl, Claus Hugo Hermann, Institute for Advanced Study, Princeton, N. J	1940
Whipple, George Hoyt, School of Medicine of the University of Rochester, Crittenden Blvd., Rochester 7, N. Y	1929
Whitehead, John Boswell, Johns Hopkins University, Baltimore 18, Md	1932
Whitney, Willis Rodney, General Electric Co., Schenectady 5, N. Y	1917
Willis, Bailey, Box 1365, Stanford University, Calif	1920
Wilson, Edwin Bidwell, 55 Shattuck St., Boston 15, Mass	1919
Wislocki, George Bernays, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1941
Wissler, Clark, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1929
Wolbach, Simeon Burt, Harvard University Medical School, 25 Shattuck St. Boston 15, Mass	1938
Wood, Robert Williams, Johns Hopkins University, Baltimore 18, Md	1912
Woodruff, Lorande Loss, Yale University, New Haven, Conn	1924
Woodworth, Robert Sessions, Columbia University, New York 27, N. Y	1921
Wright, Frederick Eugene, 2134 Wyoming Ave., Washington 8, D. C	1923
Wright, Orville, 15 North Broadway, Dayton, Ohio	1936
Wright, Sewall Green, University of Chicago, Chicago 37, Ill	1934
Wright, William Hammond, Lick Observatory, Mt. Hamilton, Calif	1922
Yerkes, Robert Mearns, Yale School of Medicine, 333 Cedar St., New Haven, Conn	1923
Zworykin, Vladimir Kosma, RCA Laboratories, Princeton, N. J	1943

MEMBERS EMERITI

Benedict, Francis Gano, Machiasport, Maine	1914
Dickson, Leonard Eugene, University of Chicago, Chicago 37, Ill	1913
Howard, Leland Ossian, Bureau of Entomology, U. S. Department of Agriculture, Washington 25, D. C	1916
MacCallum, William George, Department of Pathology, Johns Hopkins University, 1833 East Monument St., Baltimore 5, Md	1921

6. *Members of the National Academy of Sciences—Continued*

FOREIGN ASSOCIATES OF THE NATIONAL ACADEMY OF SCIENCES

July 1, 1943

	Elected
Adrian, Edgar Douglas, Cambridge University, Cambridge, England	1941
Barcroft, Sir Joseph, Cambridge University, Cambridge, England	1939
Bjerknes, V. F. K., University, Oslo, Norway	1934
Bohr, Niels, University of Copenhagen, Copenhagen, Denmark	1925
Bordet, Jules, Pasteur Institute, Rue du Remorqueur, 28, Brussels, Belgium	1935
Bower, Frederick Orpen, 2, The Crescent, Ripon, Yorks, England	1929
Caso, Alfonso, Instituto Nacional de Antropologia e Historia, Mexico D. F., Mexico	1943
Dale, Sir Henry Hallett, The Royal Society, Burlington House, Piccadilly, London W. 1. England	1940
Debye, Peter, Baker Laboratory, Cornell University, Ithaca, N. Y. (U. S. A.)	1931
Deslandres, Henri, 15 Rue de Teheran, Paris 8, France	1913
Eddington, Sir Arthur Stanley, Observatory, Cambridge, England	1925
Einstein, Albert, Institute for Advanced Study, Princeton, N. J. (U. S. A.)	1922
Hadamard, Jacques, 12 Rue Emile Faguet, Paris XIV, France	1926
Hardy, Godfrey Harold, Trinity College, Cambridge, England	1927
Hill, Archibald Vivian, Royal Society, London, England	1941
Hill, James Peter, University of London, London, England	1940
Hopkins, Sir Frederick Gowland, University, Cambridge, England	1924
Houssay, Bernardo Alberto, Instituto de Fisiologia, Buenos Aires, Argentina	1940
Janet, Pierre, 54, rue de Varenne, Paris, France	1938
Jones, Sir Harold Spencer, Royal Observatory, Greenwich, SE. 10, England	1943
Keith, Sir Arthur, Buckston Browne Farm, Downe, Kent, England	1941
Krogh, August, Universitetets Zoofysiologiske Laboratorium, Juliana Maries Vej 32, Copenhagen, Denmark	1937
Lacroix, F. Alfred A., 23, rue Jean-Dolent, Paris XIV, France	1920
Levi, Giuseppe, 1, rue des Bonnes Villes, Liege, Belgium	1940
Lim, Robert K. S., Peiping Union Medical College, Peiping, China	1942
Penck, Albrecht, Meierotto-Strasse 511, Berlin W 15, Germany	1909
Planck, Max, Wangenheimstrasse 21, Berlin-Grunewald, Germany	1926
Prain, Sir David, The Well Farm, Whyteleafe, Surrey, England	1920
Robinson, Sir Robert, Dyson Perrins Laboratory, South Parks Rd., Oxford, England	1934
Sherrington, Sir Charles Scott, Broomside, Valley Rd., Ipswich, England	1924
Sommerfeld, Arnold, Dunant-Str. 6, Munich 23, Germany	1929
Southwell, Richard Vynne, Brasenose College, Oxford University, Oxford, England	1943
Spearman, Charles Edward, University of London, London, England	1943
Thompson, Sir D'Arcy Wentworth, University of St. Andrews, St. Andrews, Scotland	1943
Vallee-Poussin, C. de la, University of Louvain, Louvain, Belgium	1929
Van der Bijl, Hendrik Johannes, University of Pretoria, Pretoria, South Africa	1943
Vening Meinesz, Felix Andries, University of Utrecht, Utrecht, The Netherlands	1939
Watson, D. M. S., University College, Gower St., London, W. C. 1, England	1938
Wieland, Heinrich, Chemisches Laboratorium Bayer, Akademie der Wissenschaften, Sophienstrasse 10, Munich 2 NW, Germany	1932

7. MEDALISTS OF THE NATIONAL ACADEMY

	Medal	Year
Abbe, Cleveland[1]	Welfare	1916
Abbot, Charles Greeley	Draper	1910
Abel, Othenio[2]	Elliot	1920
Adams, Walter Sidney	Draper	1918
Albert Ier, Prince of Monaco[1, 2]	Agassiz	1918
Allen, Edgar Johnson[1, 2]	do	1937
Auwers, G. F. J. Arthur[1]	Watson	1891
Barnett, Samuel Jackson[2]	Comstock	1918
Bather, Francis Arthur[1, 2]	Thompson	1932
Becquerel, Henri[1]	Barnard	1905
Beebe, William[2]	Elliot	1918
Bigelow, Henry Bryant	Agassiz	1931
Bjerknes, Vilhelm	do	1926
Black, Davidson[1, 2]	Elliot	1931
Bohr, Niels	Barnard	1925
Bowen, Ira Sprague	Draper	1942
Bragg, Sir William Henry[1, 3]	Barnard	1914
Do	Carty	1939
Bragg, W. L.[2, 3]	Barnard	1914
Breuil, Henri[2]	Ellliot	1924
Bridgman, P. W	Comstock	1933
Brown, Ernest William[1]	Watson	1936
Campbell, William Wallace[1]	Draper	1906
Cannon, Annie Jump[1, 2]	do	1931
Canu, Ferdinand[1, 2]	Elliot	1923
Carty, John J.[1]	Carty	1932
Chandler, Seth Carlo[1]	Watson	1894
Chapin, Charles V.[1, 2]	Welfare	1928
Chapin, James P.[2]	Elliot	1932
Chapman, Frank Michler	do	1917
Charlier, C. V. L.[2]	Watson	1924
Clarke, John Mason[1]	Thompson	1925
Coghill, George Ellett[1]	Elliot	1930
Colbert, Edwin H.[2]	do	1935
Conklin, Edwin Grant	Carty	1943
Cumming, Hugh S.[2]	Welfare	1935
Curie, Irène[2, 4]	Barnard	1940
Davisson, C. J	Comstock	1928
Dean, Bashford[1, 2]	Elliot	1921
Defant, Albert[2]	Agassiz	1932
de Sitter, Willem[1]	Watson	1929
Deslandres, Henri	Draper	1913
Duane, William[1]	Comstock	1923
Eddington, Sir Arthur Stanley.	Draper	1924
Einstein, Albert	Barnard	1921
Ekman, V. Walfrid[2]	Agassiz	1928
Fabry, Charles[2]	Draper	1919
Fairchild, David[2]	Welfare	1933
Fowler, Alfred[1]	Draper	1920
Gardiner, J. Stanley[2]	Agassiz	1929
Gill, Sir David[1]	Watson	1899
Goethals, George Washington.[1, 2]	Welfare	1914
Gorgas, William Crawford[1, 2]	do	1914
Gould, Benjamin Apthorp[1]	Watson	1887
Grabau, Amadeus William[2]	Thompson	1936
Gran, Haakon Hasberg[2]	Agassiz	1934
Hale, George Ellery[1]	Draper	1904
Heisenberg, Werner[2]	Barnard	1930
Helland-Hansen, Bjorn[2]	Agassiz	1933
Hjort, Johan[2]	do	1913
Hoover, Herbert Clark	Welfare	1920
Hoover, John Edgar[2]	do	1939
Hubble, Edwin	Barnard	1935
Huggins, Sir William[1]	Draper	1901
Iselin, Columbus, II[2]	Agassiz	1942
Joliot, F.[2, 4]	Barnard	1940
Kapteyn, J. C.[1]	Watson	1913
Keeler, James Edward[1]	Draper	1899
Knudsen, Martin[2]	Agassiz	1936
Langley, Samuel Pierpont[1]	Draper	1886
Lawrence, Ernest Orlando	Comstock	1938
Leuschner, Armin Otto	Watson	1915
Lillie, Frank Rattray	Agassiz	1939
Lull, Richard Swann[2]	Elliot	1933
Margerie, Emmanuel de[2]	Thompson	1923
Mather, Stephen Tyng[1, 2]	Welfare	1930
Mees, C. E. Kenneth[2]	Draper	1936
Merrill, George Perkins[1]	Smith	1922
Michelson, Albert Abraham[1]	Draper	1916
Millikan, Robert Andrews	Comstock	1913
Murphy, Robert Cushman[2]	Elliot	1936
Newton, Hubert Anson[1]	Smith	1888
Osborn, Henry Fairchild[1]	Elliot	1929
Painter, Theophilus Shickel	do	1934
Park, William Hallock[1, 2]	Welfare	1932
Pettersson, Otto Sven[1, 2]	Agassiz	1924
Pickering, Edward Charles[1]	Draper	1888
Pinchot, Gifford[2]	Welfare	1916
Plaskett, John Stanley[1, 2]	Draper	1934
Rayleigh, Lord[1]	Barnard	1895
Ridgway, Robert[1]	Elliot	1919
Rockefeller, John Davison, Jr[2]	Welfare	1943
Röntgen, Wilhelm Conrad[1, 2]	Barnard	1900
Rose, Wickliffe[1, 2]	Welfare	1931
Rowland, Henry Augustus[1]	Draper	1890
Russell, F. F.[2]	Welfare	1935
Russell, Henry Norris	Draper	1922
Rutherford, Baron: Ernest Rutherford.[1]	Barnard	1909
Schmidt, Johannes[1, 2]	Agassiz	1930
Schoenfeld, Ed.[1, 2]	Watson	1889
Schuchert, Charles[1]	Thompson	1934
Scott, W. B	do	1930
Seton, Ernest Thompson[2]	Elliot	1928
Shapley, Harlow	Draper	1926
Sigsbee, Rear Admiral Charles Dwight, U. S. Navy.[1, 2]	Agassiz	1920
Slipher, V. M	Draper	1932
Smith, James Perrin[1]	Thompson	1928
Stebbins, Joel	Draper	1915
Stensiö, Erik A.: Son[2]	Elliot	1927
Stiles, Charles Wardell[1, 2]	Welfare	1921
Stratton, Samuel Wesley[1]	do	1917
Sverdrup, Harald Ulrik[2]	Agassiz	1938
Ulrich, Edward Oscar	Thompson	1930
Vaughan, T. Wayland	Agassiz	1935
Vogel, Herman Karl[1]	Draper	1893
Vollmer, August[2]	Welfare	1934
Walcott, Charles Doolittle[1]	Thompson	1921
Weber, Max[1, 2]	Agassiz	1927
Westergaard, A. H.[1, 2]	Walcott	1939
Wheeler, William Morton[1]	Elliot	1922
White, David[1]	Thompson	1931
Do	Walcott	1934
Whitney, Willis Rodney	Welfare	1937
Wilson, Edmund B.[1]	Elliot	1925
Do	Carty	1936
Wood, Robert Williams	Draper	1940
Woodward, Sir Arthur Smith[1]	Thompson	1942
Wright, William Hammond	Draper	1928
Zeeman, P.[2]	do	1921

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[1] Deceased.

[2] Not member or foreign associate of the Academy.

[3] Joint award to Sir William Bragg and W. L. Bragg.

[4] Joint award to Irène Curie and F. Joliot.

8. PRESIDENTS OF THE ACADEMY

Alexander Dallas Bache	1863–67
Joseph Henry	1868–78
William Barton Rogers	1879–82
Othniel Charles Marsh	1883–95
Wolcott Gibbs	1895–1900
Alexander Agassiz	1901–07
Ira Remsen	1907–13
William Henry Welch	1913–17
Charles Doolittle Walcott	1917–23
Albert Abraham Michelson	1923–27
Thomas Hunt Morgan	1927–31
William Wallace Campbell	1931–35
Frank Rattray Lillie	1935–39
Frank Baldwin Jewett	1939—

9. DECEASED MEMBERS AND FOREIGN ASSOCIATES

DECEASED MEMBERS

	Date of election	Date of death
Abbe, Cleveland	1878	Oct. 28, 1916
Abbot, Henry L	1872	Oct. 1, 1927
Abel, John Jacob	1912 [1]	May 26, 1938
Agassiz, Alexander	1866	Mar. 27, 1910
Agassiz, Louis	(2)	Dec. 14, 1873
Alexander, J. H	(2)	Mar. 2, 1867
Alexander, Stephen	(2)	June 25, 1883
Allen, J. A	1876	Aug. 29, 1921
Ames, Joseph Sweetman [3]	1909 [1]	June 24, 1943
Armsby, H. P	1920	Oct. 19, 1921
Atkinson, George Francis	1918 [1]	Nov. 14, 1918
Bache, Alexander Dallas	(2)	Feb. 14, 1867
Bailey, Solon Irving	1923	June 5, 1931
Baird, Spencer F	1864	Aug. 19, 1887
Barker, George F	1876 [1]	May 24, 1910
Barnard, E. E	1911	Feb. 6, 1923
Barnard, F. A. P	(2)	Apr. 27, 1889
Barnard, J. G	(2)	May 4, 1882
Barrell, Joseph	1919	May 4, 1919
Bartlett, W. H. C	(2)	Feb. 11, 1893
Barus, Carl	1892	Sept. 28, 1935
Becker, George Ferdinand	1901	Apr. 20, 1919
Beecher, Charles Emerson	1899	Feb. 14, 1904
Bell, A. Graham	1883	Aug. 2, 1922
Benedict, Stanley Rossiter	1924 [1]	Dec. 21, 1936
Billings, John S	1883	Mar. 11, 1913
Boas, Franz	1900 [1]	Dec. 21, 1942
Bocher, Maxime	1909 [1]	Sept. 12, 1918
Boltwood, B. B	1911	Aug. 14, 1927
Boss, Lewis	1889	Oct. 5, 1912
Bowditch, Henry P	1887	Mar. 13, 1911
Bowie, William	1927 [1]	Aug. 28, 1940
Branner, J. C	1905	Mar. 1, 1922
Breasted, James Henry	1923	Dec. 2, 1935
Brewer, William H	1880	Nov. 2, 1910
Bridges, Calvin Blackman	1937	Dec. 27, 1938
Britton, Nathaniel L	1914	June 25, 1934
Brooks, William Keith	1884	Nov. 12, 1908
Brown, Ernest William	1923	July 22, 1938
Brown-Sequard, Charles E	1868	Apr. 2, 1894
Brush, George Jarvis	1868	Feb. 6, 1912
Bumstead, Henry A	1913	Dec. 31, 1920
Burgess, George K	1922 [1]	July 2, 1932
Calkins, Gary Nathan	1919 [1]	Jan. 4, 1943
Campbell, William Wallace	1902 [1]	June 14, 1938
Carothers, Wallace H	1936	Apr. 29, 1937
Carty, John J	1917	Dec. 27, 1932
Casey, Thomas L	1890	Mar. 25, 1896
Caswell, Alexis	(2)	Jan. 8, 1877
Chamberlin, Thomas Chrowder	1903	Nov. 15, 1928
Chandler, Charles Frederick	1874	Aug. 25, 1925
Chandler, Seth Carlo	1888 [1]	Dec. 31, 1913
Chauvenet, William	(2)	Dec. 13, 1877
Clark, Henry James	1872	July 1, 1879
Clark, William B	1908	July 27, 1913
Clarke, Frank Wigglesworth	1909	May 23, 1931
Clarke, John M	1909	May 29, 1925
Clinton, George Perkins	1930	Aug. 13, 1937
Coffin, James H	1869	Feb. 6, 1873
Coffin, J. H. C	(2)	Jan. 8, 1890
Coghill, George Ellett	1935	July 23, 1941
Comstock, Cyrus B	1884	May 29, 1910
Comstock, George C	1899	May 11, 1934
Cook, George H	1887	Sept. 22, 1889
Cooke, Josiah P	1872	Sept. 3, 1894
Cope, Edward D	1872	Apr. 12, 1897
Coues, Elliott	1877	Dec. 25, 1899
Coulter, John Merle	1909	Dec. 23, 1928
Councilman, William T.[4]	1904	May 27, 1933
Crafts, James M	1872	June 21, 1917
Curtis, Heber Doust	1919	Jan. 9, 1942
Cushing, Harvey (Williams)	1917	Oct. 7, 1939
Dall, William H	1897 [1]	Mar. 27, 1927
Dalton, J. C	1864	Feb. 2, 1889
Dana, E. S	1884	June 16, 1935
Dana, James D	(2)	Apr. 14, 1895
Davidson, George	1874	Dec. 2, 1911
Davis, Charles H	(2)	Feb. 18, 1877
Davis, William M	1904 [1]	Feb. 5, 1934
Dodge, Raymond [3]	1924 [1]	Apr. 8, 1942
Donaldson, Henry Herbert	1914	Jan. 24, 1938
Draper, Henry	1877	Nov. 20, 1882
Draper, John W	1877	Jan. 4, 1882
Duane, William	1920	Mar. 7, 1935
Dutton, C. E	1884 [1]	Jan. 4, 1912
Eads, James B	1872	Mar. 8, 1887
East, Edward Murray	1925 [1]	Nov. 9, 1938
Edison, Thomas A	1927	Oct. 18, 1931
Eigenmann, Carl H	1923	Apr. 24, 1927
Elkin, W. L	1895	May 30, 1933
Emmet, William LeRoy	1921	Sept. 26, 1941
Emmons, Samuel F	1892	Mar. 28, 1911
Englemann, George	(2)	Feb. 4, 1884
Ewing, James	1935 [1]	May 16, 1943
Farlow, W. G	1879	June 3, 1919
Ferrell, William	1868	Sept. 18, 1891
Fewkes, Jesse Walter	1914	May 31, 1930
Folin, Otto	1916 [1]	Oct. 25, 1934
Forbes, Stephen Alfred	1918	Mar. 13, 1930
Franklin, E. C	1914 [1]	Feb. 4, 1937
Frazer, John Fries	(2)	Oct. 12, 1872
Freeman, John R	1918	Oct. 6, 1932
Frost, Edwin Brant	1908	May 14, 1935
Gabb, William M	1876	May 30, 1878
Gay, Frederick Parker	1939 [1]	July 14, 1939
Genth, F. A	1872	Feb. 2, 1893
Gherardi, Bancroft	1933 [1]	Aug. 14, 1941
Gibbs, Josiah Willard	1879	Apr. 28, 1903
Gibbs, Wolcott	(2)	Dec. 9, 1908
Gilbert, Grove Karl	1883	May 1, 1918
Gill, Theodore Nicholas	1873	Sept. 25, 1914
Gilliss, James Melville	(2)	Feb. 9, 1865
Gooch, Frank Austin	1897	Aug. 12, 1929
Goodale, G. L	1890	Apr. 15, 1923
Goode, G. Brown	1888	Sept. 6, 1896
Gortner, Ross Aiken	1935 [1]	Sept. 30, 1942
Gould, Augustus A	(2)	Sept. 15, 1866
Gould, Benjamin A	(2)	Nov. 26, 1896
Gray, Asa	(2)	Jan. 30, 1888
Guyot, Arnold	(2)	Feb. 8, 1884
Hadley, James	1872	Nov. 14, 1872
Hague, Arnold	1885	May 15, 1917
Haldeman, S. S	1876	Sept. 20, 1880
Hale, George Ellery	1902	Feb. 21, 1938
Hall, Asaph	1875	Nov. 22, 1907
Hall, Edwin Herbert	1911	Nov. 20, 1938
Hall, G. Stanley	1915	Apr. 24, 1924
Hall, James	(2)	Aug. 7, 1898
Halsted, W. S	1917	Sept. 7, 1922
Hastings, C. S	1889	Jan. 29, 1932
Hayden, F. V	1873	Dec. 22, 1887
Hayford, John F	1911	Mar. 10, 1925
Henderson, Lawrence Joseph	1919	Feb. 10, 1942
Henry, Joseph	(2)	May 13, 1878
Hilgard, Eugene W	1872	Jan. 8, 1916
Hilgard, Julius E	(2)	May 9, 1890
Hill, George William	1874	Apr. 16, 1914
Hill, Henry B	1883	Apr. 6, 1903
Hillebrand, W. F	1908	Feb. 7, 1925
Hitchcock, Edward	(2)	Feb. 27, 1864
Holbrook, J. E	1868	Sept. 8, 1871
Holden, Edward Singleton	1885	Mar. 16, 1914
Holmes, William H.[4]	1905	Apr. 20, 1933
Howe, H. M	1917	May 14, 1922
Howe, Marshall Avery	1923	Dec. 24, 1936
Hubbard, J. S	(2)	Aug. 16, 1863
Humphreys, A. A	(2)	Dec. 27, 1883
Hunt, T. Sterry	1873	Feb. 12, 1892
Huntington, G. S	1924	Jan. 5, 1927
Hyatt, Alpheus	1875	Jan. 15, 1902
Iddings, Joseph P	1907 [1]	Sept. 8, 1920

See footnotes at end of table.

9. *Deceased Members and Foreign Associates*—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death		Date of election	Date of death
Jackson, Charles Loring [7]	1883 [1]	Oct. 28, 1935	Peirce, Benjamin Osgood	1906	Jan. 14, 1915
James, William [8]	1903 [1]	Aug. 26, 1910	Peirce, Charles S. S	1876 [1]	Apr. 20, 1914
Johnson, S. W	1866	July 21, 1909	Penfield, Samuel L	1900	Aug. 12, 1906
Jones, Walter	1918	Feb. 28, 1935	Peters, C. H. F	1876 [1]	July 18, 1890
Jordan, Edwin Oakes	1936	Sept. 2, 1936	Pickering, Edward C	1873	Feb. 3, 1919
Keeler, J. E	1900	Aug. 12, 1900	Pirsson, Louis V	1913 [1]	Dec. 8, 1919
Kellogg, Vernon Lyman	1930	Aug. 8, 1937	Pourtales, L. F	1873	July 19, 1880
Kemp, James F	1911	Nov. 17, 1926	Powell, John W	1880	Sept. 23, 1902
Kennelly, Arthur Edwin	1921	June 18, 1939	Power, Frederick B	1924 [1]	Mar. 26, 1927
King, Clarence	1876	Dec. 24, 1901	Prudden, T. Mitchell	1901	Apr. 10, 1924
Kirtland, Jared P	1865	Dec. 10, 1877	Pumpelly, Raphael	1872	Aug. 10, 1923
Kohler, Elmer Peter	1920 [1]	May 24, 1938	Pupin, Michael Idvorsky	1905	Mar. 12, 1935
Landsteiner, Karl	1932 [1]	June 26, 1943	Putnam, Frederic W	1885	Aug. 14, 1915
Lane, J. Homer	1872	May 3, 1880	Ransome, F. L	1914	Oct. 6, 1935
Langley, Samuel P	1876	Feb. 27, 1906	Ranson, Stephen Walter	1940 [1]	Aug. 30, 1942
Laufer, Berthold	1930	Sept. 13, 1934	Remsen, Ira	1882	Mar. 4, 1927
Lea, Matthew Carey	1892	Mar. 15, 1897	Richards, T. W	1899 [1]	Apr. 2, 1928
Le Conte, John	1878	Apr. 29, 1891	Richtmyer, Floyd Karker	1932	Nov. 7, 1939
Le Conte, John L	(2)	Nov. 15, 1883	Ridgway, Robert	1917	Mar. 25, 1929
Le Conte, Joseph	1875	July 6, 1901	Robinson, B. L	1921	July 27, 1935
Leidy, Joseph	(2)	Apr. 30, 1891	Rodgers, John	(2)	May 5, 1882
Lesley, J. Peter	(2)	June 1, 1903	Rogers, Fairman	(2)	Aug. 22, 1900
Lesquereux, Leo	1864	Oct. 25, 1889	Rogers, Robert E [11]	(2)	Sept. 6, 1884
Levene, Phoebus Aaron Theodor	1916 [1]	Sept. 6, 1940	Rogers, Willaim A	1885	Mar. 1, 1898
Lindgren, Waldemar	1909 [1]	Nov. 3, 1939	Rogers, William B [12]	(2)	May 30, 1882
Loeb, Jacques	1910	Feb. 12, 1924	Rood, Ogden N	1865	Nov. 12, 1902
Longstreth, Miers F	(2)	Dec. 27, 1891	Rosa, E. B	1913	May 17, 1921
Loomis, Elias	1873	Aug. 15, 1889	Rowland, Henry A	1881	Apr. 16, 1901
Lovering, Joseph	1873	Jan. 18, 1892	Royce, Josiah	1906 [1]	Sept. 14, 1916
Lusk, Graham	1915	July 18, 1932	Rutherfurd, Lewis M	(2)	May 30, 1892
Lyman, Theodore	1872	Sept. 9, 1897	Ryan, Harris Joseph	1920	July 3, 1934
Mahan, D. H	(2)	Sept. 16, 1871	Sabine, Wallace C. W	1917	Jan. 10, 1919
Mall, Franklin P	1907	Nov. 17, 1917	St. John, Charles Edward	1924	Apr. 26, 1935
Marsh, G. P	1866	July 23, 1882	Sapir, Edward	1934 [1]	Feb. 4, 1939
Marsh, O. C	1874	Mar. 18, 1899	Sargent, Charles S	1895	Mar. 22, 1927
Mayer, Alfred M	1872	July 13, 1897	Sauveur, Albert	1927	Jan. 26, 1939
Mayor, A. G	1916	June 25, 1922	Saxton, Joseph	(2)	Oct. 26, 1873
Mayo-Smith, Richmond	1890	Nov. 11, 1901	Schott, Charles A	1872	July 31, 1901
Meek, F. B	1869	Dec. 21, 1876	Schuchert, Charles	1910 [1]	Nov. 20, 1942
Meigs, M. C	1865	Jan. 2, 1892	Scudder, Samuel H	1877	May 17, 1911
Meltzer, Samuel James	1912	Nov. 8, 1920	Sellers, William	1873 [1]	Jan. 24, 1905
Mendel, Lafayette B [9]	1913	Dec. 9, 1935	Setchell, William Albert	1919 [1]	Apr. 4, 1943
			Silliman, Benjamin, Sr	(2)	Nov. 24, 1864
Mendenhall, Charles Elwood	1918	Aug. 18, 1935	Silliman, Benjamin, Jr	(2)	Jan. 14, 1885
			Smith, Alexander	1915	Sept. 8, 1922
Mendenhall, T. C	1887	Mar. 22, 1924	Smith, Edgar F	1899	May 3, 1928
Merriam, Clinton Hart	1902 [1]	Mar. 19, 1942	Smith, Erwin F	1913	Apr. 6, 1927
Merrill, George Perkins	1922	Aug. 15, 1929	Smith, J. Lawrence	1872	Oct. 12, 1883
Michael, Arthur	1889 [1]	Feb. 8, 1942	Smith, James Perrin	1925 [1]	Jan. 1, 1931
Michelson, A. A	1888	May 9, 1931	Smith, Sidney Irving [13]	1884	May 6, 1926
Miller, Dayton Clarence	1921 [1]	Feb. 22, 1941	Smith, Theobald	1908	Dec. 10, 1934
Minot, Charles Sedgwick	1897	Nov. 19, 1914	Sperry, Elmer A	1925 [1]	June 16, 1930
Mitchell, Henry	1885	Dec. 1, 1902	Squier, George O	1919	Mar. 24, 1934
Mitchell, Silas Weir	1865 [1]	Jan. 4, 1914	Stejneger, Leonhard	1923 [1]	Feb. 28, 1943
Modjeski, Ralph	1925 [1]	June 26, 1940	Stieglitz, Julius Oscar	1911	Jan. 10, 1937
Moore, E. H	1901	Dec. 30, 1932	Stillwell, Lewis Buckley	1921 [1]	Jan. 19, 1941
Morgan, Louis H	1875	Dec. 17, 1881	Stimpson, William	1868	May 26, 1872
Morley, E. W	1897	Feb. 24, 1923	Stockard, Charles Rupert	1922 [1]	Apr. 7, 1939
Morse, Edward Sylvester	1876	Dec. 20, 1925	Story, William Edward	1908 [1]	Apr. 11, 1930
Morse, Harmon N	1907	Sept. 8, 1920	Stratton, S. W	1917	Oct. 18, 1931
Morton, Henry	1874	May 9, 1902	Strong, Theodore	(2)	Feb. 1, 1869
Nef, John Ulric	1904 [1]	Aug. 13, 1915	Sullivant, W. S	1872	Apr. 30, 1873
Newberry, J. S	(2)	Dec. 7, 1892	Swain, George F	1923	July 1, 1931
Newcomb, Simon	1869	July 11, 1909	Swasey, Ambrose	1922	June 15, 1937
Newton, H. A	(2)	Aug. 12, 1896	Taylor, David Watson	1918	July 28, 1940
Newton, John	1876	May 1, 1895	Tennent, David Hilt	1929 [1]	Jan. 11, 1941
			Thaxter, Roland	1912	Apr. 22, 1932
Nichols, Edward Leamington	1901	Nov. 10, 1937	Thomson, Elihu	1907	Mar. 13, 1937
Nichols, Ernest Fox	1908	Apr. 29, 1924	Torrey, John	(2)	Mar. 10, 1873
Norris, James Flack	1934 [1]	Aug. 3, 1940	Totten, J. G	(2)	Apr. 22, 1864
Norton, William A	1873	Sept. 21, 1883	Trowbridge, Augustus	1919	Mar. 14, 1934
Noyes, Arthur Amos	1905 [1]	June 3, 1936	Trowbridge, John	1878	Feb. 18, 1923
Noyes, William Albert	1910 [1]	Oct. 24, 1941	Trowbridge, William P	1872	Aug. 12, 1892
Oliver, James E	1872	Mar. 27, 1895	Trumbull, James H	1872	Aug. 5, 1897
Osborn, Henry Fairfield	1900	Nov. 6, 1935	Tuckerman, Edward	1868	Mar. 15, 1886
Osborne, Thomas Burr	1910	Jan. 29, 1929	Van Hise, C. R	1902	Nov. 19, 1918
Packard, A. S	1872	Feb. 14, 1905			
Pearl, Raymond	1916	Nov. 17, 1940	Van Vleck, John Hasbrouck	1911	June 3, 1943
Peirce, Benjamin [10]	(2, 3)	Oct. 6, 1880	Vaughan, Victor Clarence	1915 [1]	Nov. 21, 1929

See footnotes at end of table.

9. *Deceased Members and Foreign Associates*—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death
Verrill, Addison E.[14]	1872	Dec. 10, 1926
Walcott, Charles D	1896 [1]	Feb. 9, 1927
Walker, Francis A	1878	Jan. 5, 1897
Warren, G. K	1876	Aug. 8, 1882
Washburn, E. W	1932	Feb. 6, 1934
Washburn, Margaret Floy[15]	1931 [1]	Oct. 29, 1939
Washington, H. S	1921 [1]	Jan. 7, 1934
Watson, James C	1868	Nov. 23, 1880
Watson, Sereno	1889	Mar. 9, 1892
Webster, A. G	1903	May 15, 1923
Welch, William H	1895	Apr. 30, 1934
Wells, Harry Gideon	1925	Apr. 26, 1943
Wells, Horace L	1903	Dec. 19, 1924
Wheeler, Henry Lord	1909 [1]	Oct. 30, 1914
Wheeler, William Morton	1912	Apr. 19, 1937
White, Charles A	1889	June 29, 1910
White, David	1912	Feb. 7, 1935
White, Henry Seely	1915 [1]	May 20, 1943
Whitman, C. O	1895	Dec. 6, 1910
Whitney, Josiah D.[10]	([12])	Aug. 19, 1896
Whitney, William D.[10]	1865 [1]	June 29, 1894
Wilczynski, E. J.[16]	1919	Sept. 14, 1932
Williston, Samuel W	1915	Aug. 30, 1918
Wilson, Edmund Beecher	1899	Mar. 3, 1939
Wilson, Henry Van Peters	1927 [1]	Jan. 4, 1939
Winlock, Joseph	([2])	June 11, 1875
Wood, Horatio C	1879 [1]	Jan. 3, 1920
Woodward, J. J	1873	Aug. 17, 1884
Woodward, Robert S	1896	June 29, 1924
Worthen, A. H	1872	May 6, 1888
Wright, Arthur Williams	1881	Dec. 19, 1915
Wyman, Jeffries	([2])	Sept. 4, 1878
Young, Charles A	1872	Jan. 3, 1904
Zinsser, Hans	1924 [1]	Sept. 4, 1940

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[1] Biographical Memoirs have not been published.
[2] Charter member, Mar. 3, 1863.
[3] Transferred to roll of members emeriti, 1938.
[4] Transferred to roll of members emeriti, 1929.
[5] Transferred to roll of members emeriti, 1936.
[6] Transferred to roll of members emeriti, 1932
[7] Transferred to roll of members emeriti in 1933.
[8] Resigned, 1909.
[9] Transferred to roll of members emeriti in 1935.
[10] Resigned, 1873.
[11] Dropped, 1866; reelected, 1875.
[12] Dropped, 1866; reelected, 1872.
[13] Transferred to roll of members emeriti in 1908.
[14] Transferred to roll of members emeriti in 1924.
[15] Transferred to roll of members emeriti in 1937.
[16] Transferred to roll of members emeriti in 1925.

DECEASED FOREIGN ASSOCIATES

Adams, Frank Dawson
Adams, J. C.
Airy, Sir George B.
Argelander, F. W. A.
Arrhenius, S. A.
Auwers, G. F. J. Arthur
Backlund, Oskar
Baer, Karl Ernest von
Baeyer, Adolf von
Barrande, Joachin
Barrois, Charles
Bateson, William
Beaumont, L. Elie de
Becquerel, Henri
Berthelot, M. P. E.
Bertrand, J. L. F.
Boltzmann, Ludwig
Bornet, Edouard
Boussingault, J. B. J. D.
Boveri, Theodor
Bragg, Sir William
Braun, Alexander
Brewster, Sir David
Brøgger, W. C.
Bunsen, Robert W.
Burmeister, C. H. C.
Candolle, Alphonse de
Cayley, Arthur
Chasles, Michel
Chevreul, M. E.
Clausius, Rudolph
Cornu, Alfred
Crookes, Sir William
Darboux, Gaston
Darwin, Sir George Howard
de Sitter, Willem
de Vries, Hugo
Dewar, Sir James
Dove, H. W.
Dumas, J. B.
Dyson, Sir Frank Watson
Ehrlich, Paul
Eijkman, Christian
Engler, Adolph
Faraday, Michael
Fischer, Emil
Forsyth, A. R.
Fowler, Alfred
Geikie, Sir Archibald
Gengenbaur, Karl
Gill, Sir David
Gyldém, Hugo
Goebel, K. E. von
Groth, Paul von
Haber, Fritz
Hadfield, Sir Robert A.
Haldane, John Scott
Hamilton, Sir William Rowan
Heim, Albert
Helmholtz, Baron H. von
Hertwig, Richard
Hilbert, David
Hoff, J. H. van't
Hofmann, A. W.
Hooker, Sir Joseph D.
Huggins, Sir William
Huxley, T. H.
Ibañez, Carlos
Janssen, J.
Jordan, M. E. C.
Joule, James P.
Kapteyn, J. C.
Kekulé, August
Kelvin, Lord
Kirchoff, G. R.
Klein, Felix
Koch, Robert
Kohlrausch, Frederich
Kölliker, Albert von
Kossel, Albrecht
Kronecker, Hugo
Kustner, Karl Friedrich
Lacaze-Duthiers, Henri de
Lankester, Sir E. Ray
Larmor, Sir Joseph
Leuckart, Rudolph
Lie, Sophus
Liebig, Justus von
Lister, Lord
Loewy, Maurice
Lorentz, Hendrik Antoon
Ludwig, K. F. W.
Marconi, Marchese.
Marey, E. J.
Mendeléeff, D. I.
Milne-Edwards, Henri
Moissan, Henri
Murchison, Sir Roderick I.
Murray, Sir John
Onnes, Heike Kamerlingh
Oppolzer, Theodore von
Ostwald, Wilhelm
Owen, Sir Richard
Parsons, Sir Charles Algernon
Pasteur, Louis
Pavlov, I. P.
Peters, C. H. F.
Pfeffer, Wilhelm
Picard, Emile
Piano, G. A. A.
Poincaire, Jules Henri
Rammelsberg, C. F.
Ramon y Cajal, Santiago
Ramsay, Sir William
Rayleigh, Lord
Regnault, Victor
Retzius, Gustav
Reymond, Emil Du Bois
Richthofen, F. von
Rosenbusch, Karl Harry Ferdinand
Roux, Wilhelm
Rubner, Max
Rutherford, Baron
Sabatier, Paul
Sachs, Julius von
Schiaparelli, Giovanni
Schneider, Charles Eugene
Schuster, Sir Arthur
Seeliger, Hugo R. von
Sørensen, Søren Peter Lauritz
Spemann, Hans
Stas, Jean Servais
Stokes, Sir George G.
Strasburger, Edouard
Sturve, Otto von
Stumpf, Carl
Suess, Eduard
Sylvester, J. J.
Thomson, Sir Joseph J.
Tisserand, F. F.
Van der Waals, J. D.
Virchow, Rudolph von
Vogel, H. C.
Volterra, Vito
Waldeyer, Wilhelm
Weierstrauss, Karl
Weismann, August
Willstaetter, Richard
Wöhler, Frederich
Wolf, Max F. J. C.
Wundt, Wilhelm
Würtz, Adolph
Zirkel, Ferdinand
Zittell, K. A. R. von

APPENDIX B

NATIONAL RESEARCH COUNCIL

1. EXECUTIVE ORDER ISSUED BY THE PRESIDENT OF THE UNITED STATES, MAY 11, 1918

The National Research Council was organized in 1916 at the request of the President by the National Academy of Sciences, under its congressional charter, as a measure of national preparedness. The work accomplished by the Council in organizing research and in securing cooperation of military and civilian agencies in the solution of military problems demonstrates its capacity for larger service. The National Academy of Sciences is therefore requested to perpetuate the National Research Council, the duties of which shall be as follows:

1. In general, to stimulate research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare.
2. To survey the larger possibilities of science, to formulate comprehensive projects of research, and to develop effective means of utilizing the scientific and technical resources of the country for dealing with these projects.
3. To promote cooperation in research, at home and abroad, in order to secure concentration of effort, minimize duplication, and stimulate progress; but in all cooperative undertakings to give encouragement to individual initiative, as fundamentally important to the advancement of science.
4. To serve as a means of bringing American and foreign investigators into active cooperation with the scientific and technical services of the War and Navy Departments and with those of the civil branches of the Government.
5. To direct the attention of scientific and technical investigators to the present importance of military and industrial problems in connection with the war, and to aid in the solution of these problems by organizing specific researches.
6. To gather and collate scientific and technical information, at home and abroad, in cooperation with governmental and other agencies, and to render such information available to duly accredited persons.

Effective prosecution of the Council's work requires the cordial collaboration of the scientific and technical branches of the Government, both military and civil. To this end representatives of the Government, upon the nomination of the National Academy of Sciences, will be designated by the President as members of the Council, as heretofore, and the heads of the departments immediately concerned will continue to cooperate in every way that may be required.

WOODROW WILSON.

THE WHITE HOUSE, *May 11, 1918.*

(No. 2859)

2. ARTICLES OF ORGANIZATION, NATIONAL RESEARCH COUNCIL

PREAMBLE

The National Academy of Sciences, under the authority conferred upon it by its charter enacted by the Congress, and approved by President Lincoln on March 3, 1863, and pursuant to the request expressed in an Executive order made by President Wilson on May 11, 1918, adopts the following Articles of Organization for the National Research Council, to replace the organization under which it has operated heretofore.

ARTICLE I—PURPOSE

It shall be the purpose of the National Research Council to promote research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare, as expressed in the Executive order of May 11, 1918.

Article II—Membership

Section 1. The membership of the National Research Council shall be chosen with the view of rendering the Council an effective federation of the principal research agencies in the United States concerned with the fields of science and technology named in Article I.

Sec. 2. The Council shall be composed of—

1. Representatives of national scientific and technical societies.
2. Representatives of the Government, as provided in the Executive order.
3. Representatives of other research organizations and other persons whose aid may advance the objects of the Council.

Sec. 3. The membership of the Council shall consist specifically of the members of the executive board and the members of the divisions, constituted as provided in articles III and IV.

Sec. 4. Membership in the Council shall be limited to citizens of the United States. This, however, shall not be construed as applying to membership in committees, appointed by or acting under the Council, whose members are not necessarily members of the Council, provided that members not citizens of the United States shall in no case form a majority of any committee.

Article III—Divisions

Section 1. The Council shall be organized in divisions of two classes:

A. Divisions dealing with the more general relations and activities of the Council.

B. Divisions dealing with special branches of science and technology.

Sec. 2. The divisions of the Council shall be as follows:

A. Divisions of general relations:

I. Division of foreign relations.
II. Division of educational relations.

B. Divisions of science and technology:

III. Division of physical sciences.
IV. Division of engineering and industrial research.
V. Division of chemistry and chemical technology.
VI. Division of geology and geography.
VII. Division of medical sciences.
VIII. Division of biology and agriculture.
IX. Division of anthropology and psychology.

Sec. 3. The number of divisions and the grouping of subjects in article III, section 2, may be modified by the executive board of the National Research Council.

Sec. 4 (*a*). Each division of general relations shall consist of a chairman, one or more vice chairmen, representatives of the Government and of national and international organizations, and members at large, appointed as provided in article VI.

(*b*) There may be an executive committee of each division of general relations, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30 or, in case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division, except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

Sec. 5 (*a*). Each division of science and technology shall consist of a chairman and of representatives of the Government and of such national societies as seem essential for the conduct of the business of the division appointed as provided in article VI. Members at large may also be appointed as provided in article VI.

(*b*) There may be an executive committee of each division of science and technology, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30, or, in the case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

(*c*) The terms of office of the chairmen of the divisions of science and technology, other than that of engineering and industrial research, shall be so arranged by the chairman of the Council that one-third of these terms expire each year.

SEC. 6. The chairman of each division shall be ex officio a member of all committees of the division.

SEC. 7. Actions by the division involving matters of policy shall be subject to approval by the executive board.

ARTICLE IV—ADMINISTRATION

SECTION 1. The general officers of the National Research Council shall be a chairman, chosen as provided in article V, section 1; a treasurer (see art. V, sec. 3); and such honorary officers as may be appointed by the Council of the National Academy of Sciences, upon nomination by the executive board.

SEC. 2. The affairs of the National Research Council shall be administered by an executive board and its administrative committee. Actions by these bodies involving financial responsibilities or the appointment of general officers must be approved by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy of Sciences under general authority, or under such special authority as may be conferred on it by the Council of the National Academy of Sciences.

SEC. 3. The executive board shall consist of the members of the executive committee of the Council of the National Academy of Sciences; the chairman, treasurer, and honorary officers of the National Research Council; the chairmen of the divisions of general relations and of the divisions of science and technology of the National Research Council; the members of the committee on policies; the president or other representative of the American Association for the Advancement of Science; the chairman or other representative of the Engineering Foundation; and six members at large appointed for a term of 3 years, or for an unexpired term in case of vacancy, by the president of the National Academy of Sciences, on recommendation of the executive board. The president of the National Academy of Sciences shall preside at the meetings of the executive board.

SEC. 4. In administrative matters the executive board shall be represented by an administrative committee, which shall consist of the chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy, and the chairmen of the divisions of the National Research Council.

SEC. 5. The administrative committee shall have power to act upon all matters except those which may be reserved by the executive board for its own action; but the administrative committee shall report all its actions to the executive board. The administrative committee shall prepare the annual budget for submission to the executive board at its annual meeting.

SEC. 6. (*a*) There shall also be a committee on policies of the National Research Council. This committee shall be composed of the president of the National Academy of Sciences, nine members appointed for terms of 3 years by the executive board, preferably so that it may consist largely of persons who have had past experience in the affairs of the National Research Council. The executive board shall appoint the chairman of the committee on policies to serve for 1 year beginning July 1 or until his successor is appointed. This committee shall submit to the executive board recommendations as to general policies.

(*b*) At the annual meeting of the executive board in 1933, nine members of the committee on policies shall be appointed; three to serve for 1 year, three for 2 years, and three for 3 years, their respective terms to be determined by lot. Each year thereafter the terms of three members will expire, and their successors, to serve for 3 years each, shall be appointed at the annual meeting of the executive board in that year. The date of expiration of the term shall be June 30. In case of vacancy the executive board may fill the unexpired term by appointment.

ARTICLE V—APPOINTMENT AND DUTIES OF OFFICERS OF THE RESEARCH COUNCIL

SECTION 1. The chairman of the National Research Council shall be appointed by the executive board, subject to confirmation by the Council of the National Academy of Sciences, and shall hold office at the pleasure of the board. The chairman shall be the executive officer of the National Research Council and shall have charge of its general administration. He shall act as chairman of its administrative committee, and shall be, ex officio, a member of all divisions and committees of the Council.

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SEC. 2. There shall be appointed by the executive board, upon recommendation of the chairman of the National Research Council, an officer with the title of executive secretary of the Council, whose duties it shall be to assist the chairman in the administration of the Council. He shall attend all meetings of the executive board and of the administrative committee, and act as their secretary, and shall hold office at the pleasure of the board.

SEC. 3. The treasurer of the National Academy of Sciences shall be, ex officio, treasurer of the National Research Council.

SEC. 4. In case of a vacancy in the office of the chairman of the National Research Council or of the absence or disability of the chairman an acting chairman may be appointed by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy, upon recommendation of the executive board of the Research Council or its administrative committee.

ARTICLE VI—NOMINATION AND APPOINTMENT OF OFFICERS AND MEMBERS OF DIVISIONS

SECTION 1. *Divisions of science and technology.*—(*a*) The chairman of each division shall be nominated to the executive board by the division concerned, with the approval of the administrative committee. The chairman shall be appointed by the executive board at its annual meeting for a term of 3 years.

(*b*) The national societies to be represented in each of the divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of national societies in each division shall be nominated by the societies, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the President of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

(*d*) Members at large, if any, in each division shall be nominated by the division concerned, with the approval of the executive board, and shall be appointed by the president of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

SEC. 2. *Divisions of general relations.*—(*a*) The officers of each of the divisions of general relations shall be appointed by the executive board to serve for a period of 3 years, except that the foreign secretary of the National Academy of Sciences shall be, ex officio, chairman of the division of foreign relations.

(*b*) The national and international societies or associations to be represented in each of these divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of such societies or associations shall be nominated by the societies or associations, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the president of the National Academy of Sciencies to membership in the Council for a period of 3 years, and assigned to the division.

(*d*) Members at large in each division shall be nominated by the division, approved by the executive board, and appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

SEC. 3. The Government bureaus, civil and military, to be represented in the divisions of the Council shall be determined by the Council of the National Academy of Sciences, on recommendation from the executive board of the National Research Council.

SEC. 4. The representatives of the Government shall be selected by the secretaries of the departments concerned, after conference with the chairman of the National Research Council, and the names of those thus proposed shall be presented to the president of the National Academy of Sciencies to be nominated by him to the President of the United States for designation for service with the National Research Council. Each Government representative shall serve during the pleasure of the President of the United States, not to exceed a term of 3 years, and a vacancy from any cause shall be filled for the remainder of the term in the same manner as in the case of the original designation.

SEC. 5. The terms of office of officers and members, unless otherwise provided, shall terminate on June 30 of the year in which their appointments expire.

SEC. 6. Vacancies occurring in the divisions of either class, except as to representatives of the Government, may be filled for the unexpired term by the executive board, upon recommendation of the division concerned, or ad interim by the administrative committee upon similar recommendation.

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ARTICLE VII—MEETINGS

SECTION 1. The annual meeting of the executive board shall be held in April in the city of Washington at the time of the meeting of the National Academy of Sciences. Special meetings may be held at other times at the call of the chairman of the National Research Council. A majority of the members of the board shall constitute a quorum for the transaction of business.

SEC. 2. Stated meetings of the administrative committee shall be held in the city of Washington at least five times a year, at such dates as shall be determined by the chairman of the National Research Council. Special meetings may be held at other times on call of the chairman. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 3. The committee on policies shall hold one stated meeting during the year, preferably in Washington at the time of the annual meeting of the National Academy of Sciences. Special meetings may be held at any time on call of the chairman of the committee. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 4. Each division of science and technology shall hold at least one stated meeting during the year, at a time to be determined by the chairman of the division in consultation with the chairman of the Council. Special meetings may be called at other times by the chairman of the division.

SEC. 5. Meetings of any division of general relations shall be held upon the call of its chairman.

ARTICLE VIII—PUBLICATIONS AND REPORTS

SECTION 1. An annual report on the work of the National Research Council shall be presented by the chairman to the National Academy of Sciences.

SEC. 2. Other publications of the National Research Council may include papers, bulletins, reports, and memoirs, which may appear in Proceedings or Memoirs of the National Academy of Sciences, in the publications of other societies, in scientific and technical journals, or in a separate series of the National Research Council.

ARTICLE IX—AMENDMENTS

SECTION 1. By action of the National Academy of Sciences, on April 29, 1919, power of amendment of these articles of organization is given to the Council of the National Academy of Sciences.

3. BYLAWS

1. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee of the National Academy of Sciences and be directly responsible to the treasurer.

2. The executive board may create such other salaried officers as are necessary for the transaction of the business of the Council.

3. Officers of the Council, members of the executive board, and special agents of the Council, when authorized to travel on business of the Council, may be allowed their necessary expenses.

4. Members of the divisions of science and technology and members of the executive committee of any division of general relations, when attending an authorized meeting, may be reimbursed for traveling expenses, or such portion thereof as the division chairman may determine, within the funds made available for that purpose in the budget.

5. The chairman of each division shall direct the administrative and scientific work of the division.

6. In the fiscal year in which the term of office of a chairman of a division expires it shall be his duty to appoint, on or before February 1, a nominating committee of three, chosen from present or former members of the division or from the membership of existing committees of the division, who, in consultation with the chairman of the division and the chairman of the Council, shall select an available candidate for the chairmanship for the ensuing term. The name of the candidate shall be reported to the division through its chairman and, if approved

by the division, shall be recommended to the executive board at its annual meeting for appointment, as provided in article VI, sections 1 and 2, of the articles of organization.

7. Each division of science and technology is empowered to arrange, in accordance with its special needs, for the selection of the members at large of the division, and for an executive committee, to be appointed annually, as provided in article III, section 5 (a) and (b), and article VI, section 1 (d) of the articles of organization.

Each division may designate also one of its members to act as vice chairman of the division, the term of office to be for 1 year.

8. Following the termination of any regular 3-year period of service the chairman or members of a division shall be eligible for reappointment in the same status only after a lapse of 1 year, except that the executive board may continue the service of a chairman or members for a second period of 3 years, or less, when such action is recommended by the division concerned.

9. An annual honorarium may be paid to the chairman of each division of science and technology and an annual maintenance fund shall be appropriated for the support of the work of each division of the Council. The amount of the honorarium and of the maintenance fund of each division shall be determined by the administrative committee, subject to the approval of the executive board and the Council of the National Academy of Sciences or its executive committee.

10. The maintenance fund allotted to each division shall be expended under the authority of the chairman of the division to provide for meetings of the division and its various committees, and other necessary expenses, in accordance with the regulations in force in the Council controlling financial expenditures.

11. No member of a committee constituted to administer funds entrusted to the National Research Council shall receive an honorarium or salary from such funds for his services, except in cases specifically authorized in advance by the executive board or its administrative committee, but members of such committees may be reimbursed from the funds for expenses incurred in the work of the committee.

12. Members of special committees organized within any of the divisions must be approved by the administrative committee before official notification of appointment is made by the chairman of the division.

13. Solicitation of funds for the support of projects of a division may be made only after authorization by both the executive board (or its administrative committee) and the Council of the National Academy of Sciences (or its executive committee). Such solicitation shall be conducted under the direction of the chairman of the National Research Council acting in conjunction with the chairman of the division concerned.

14. Special funds granted to the National Research Council, other than those for fellowships and grants-in-aid, must be expended in accordance with budgets previously approved by the administrative committee.

15. It shall be the duty of the chairman of each division of the Council to submit an annual report of the activities of his division to the chairman of the Council on or before June 30. Interim reports shall be made to the chairman of the Council before each stated meeting of the administrative committee.

16. Standing committees of the executive board, unless otherwise provided for, shall be appointed annually by the board at its April meeting, or, in case of need, by the administrative committee at one of its stated meetings.

17. The executive board, at its annual meeting in April, shall appoint a nominating committee of three members to prepare nominations for presentation at the next annual meeting of the board for vacancies in the committee on policies and in the list of members at large of the board, occurring at the end of the fiscal year.

18. Amendments of bylaws may be made by the executive board at any authorized meeting of the board.

19. A publication to be known as the Bulletin of the National Research Council shall be established to provide for the publication of materials originating in the work of the Council. The Bulletin shall be issued as occasion demands.

20. A series to be known as the Reprint and Circular Series of the National Research Council shall provide for the distribution of papers published or printed by or for the National Research Council.

4. ORGANIZATION OF THE NATIONAL RESEARCH COUNCIL, 1942–43

A. Officers and Executive Board

OFFICERS

Chairman.—Ross G. Harrison, Sterling professor of biology and director of Osborn Zoological Laboratory, emeritus, Yale University, New Haven, Conn.

Treasurer.—Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the department of aeronautical engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary.—W. H. Kenerson, National Research Council, Washington, D. C.

Business manager.—George D. Meid, National Research Council, Washington, D. C.

Bursar.—J. H. J. Yule, National Research Council, Washington, D. C.

Chief clerk.—C. L. Wade, National Research Council, Washington, D. C.

EXECUTIVE BOARD

Presiding officer.—Frank B. Jewett, president, National Academy of Sciences, ex officio.

MEMBERS EX OFFICIO

Chairman and treasurer of the National Research Council.

Chairmen of the divisions of the National Research Council.

Executive committee of the Council of the National Academy of Sciences

Frank B. Jewett, president, National Academy of Sciences; vice president, American Telephone & Telegraph Co., 195 Broadway, New York City.

Isaiah Bowman, vice president, National Academy of Sciences; president, Johns Hopkins University, Baltimore, Md.

F. E. Wright, home secretary, National Academy of Sciences, 2134 Wyoming Avenue, Washington, D. C.

Ross G. Harrison.

Jerome C. Hunsaker.

W. Mansfield Clark, professor of physiological chemistry, school of medicine, Johns Hopkins University, Baltimore, Md.

A. N. Richards, professor of pharmacology, and vice president in charge of medical affairs, school of medicine, University of Pennsylvania, Philadelphia, Pa.

Committee on policies of the National Research Council

R. A. Millikan, chairman, director, Norman Bridge Laboratory of Physics, and chairman of the executive council, California Institute of Technology, Pasadena, Calif.

Isaiah Bowman, vice chairman.

Vannevar Bush, president, Carnegie Institution of Washington, Washington, D. C.

Karl T. Compton, president, Massachusetts Institute of Technology, Cambridge, Mass.

James B. Conant, president, Harvard University, Cambridge, Mass.

E. G. Conklin, president, American Philosophical Society, Independence Square, Philadelphia, Pa.

Frank B. Jewett, ex officio.

A. N. Richards.

W. J. Robbins, director, New York Botantical Garden, Bronx Park, New York City.

Harlow Shapley, professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

REPRESENTATIVES OF ORGANIZATIONS

President of the American Association for the Advancement of Science, Isaiah Bowman.

Representative of the Engineering Foundation, A. L. Queneau, metallurgist, United States Steel Corporation, 71 Broadway, New York City.

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MEMBERS AT LARGE

George D. Birkhoff, Perkins professor of mathematics and dean of the faculties of arts and sciences, Harvard University, Cambridge, Mass.

Carl E. Guthe, director of university museums and director, museum of anthropology, University of Michigan, Ann Arbor, Mich.

Walter R. Miles, professor of psychology, school of medicine, Yale University, New Haven, Conn.

Thomas Parran, Surgeon General, United States Public Health Service, Washington, D. C.

W. M. Stanley, member, Rockefeller Institute for Medical Research, Princeton, N. J.

F. W. Willard, president, Nassau Smelting & Refining Co., 170 Fulton Street, New York City.

ADMINISTRATIVE COMMITTEE

The chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy of Sciences, and the chairmen of the divisions of the Council, including—

Ross G. Harrison, chairman
Isaiah Bowman
Walter H. Bucher
W. B. Cannon
Leonard Carmichael
W. Mansfield Clark
W. F. Durand
L. P. Eisenhart
R. F. Griggs
Jerome C. Hunsaker
Frank B. Jewett
Lewis H. Weed
William Charles White
F. E. Wright

COMMITTEES

The chairman of the National Research Council is, ex officio, a member of al divisions and committees of the Council.

Committee on nominations.—Chairman, E. B. Wilson, professor of vital statistics, Harvard school of public health, Boston, Mass.

Committee on publication and library.—Chairman, Ross G. Harrison.

Advisory committee on buildings and grounds (joint committee with the National Academy of Sciences).—Chairman, Paul Brockett, executive secretary, National Academy of Sciences, Washington, D. C.

Committee on exhibits (joint committee with the National Academy of Sciences).—Chairman, F. E. Wright.

Committee on patent policy.—Chairman Howard A. Poillon, president, Research Corporation, 405 Lexington Avenue, New York City.

TECHNICAL COMMITTEES

Advisory committee on scientific personnel.—Chairman, Henry A. Barton, director, American Institute of Physics, 175 Fifth Avenue, New York City.

Advisory committee on scientific publication.—Chairman, L. P. Eisenhart.

Advisory committee to the Weather Bureau.—Chairman, R. A. Millikan.

Committee on applied mathematical statistics.—Chairman, L. P. Eisenhart.

> *Subcommittee on biological statistics.*—Chairman, Sewall Wright, professor of genetics, University of Chicago, Chicago, Ill.
>
> *Subcommittee on chemistry.*—Chairman, Hugh M. Smallwood, United States Rubber Co., Eau Claire, Wis.
>
> *Subcommittee on economics.*—Chairman, Charles F. Roos, Institute of Applied Econometrics, Inc., 500 Fifth Avenue, New York City.
>
> *Subcommittee on mathematical statistics.*—Chairman, S. S. Wilks, associate professor of mathematics, Princeton University, Princeton, N. J.
>
> *Subcommittee on medicine.*—Chairman, Lowell J. Reed, professor of biostatics and dean of the school of hygiene and public health, Johns Hopkins University, Baltimore, Md.

Committee on bibliographic service to Central and South America.—Chairman, W. H. Kenerson, executive secretary, National Research Council, Washington, D. C.

Committee on cooperation with Research Corporation.—Chairman, F. G. Cottrell, 3904 Ingomar Street NW., Washington, D. C.

Committee on publication of excerpts from International Critical Tables.—Chairman, Henry A. Barton.

Committee on relationships wtih the War and Navy Departments.—Chairman, R. A. Millikan.

Committee on scientific aids to learning.—Chairman, James B. Conant.

> *Advisory committee on visual fatigue.*—Chairman, Adelbert Ames, Jr., professor of physiological optics, Dartmouth College, Hanover, N. H.

Committee on study of schools of osteopathy.—Edwin G. Conklin, L. C. Dunn, Edward C. Elliott, E. B. Fred, Walter S. Hunter, F. P. Keppel, L. A. Maynard; C. V. Taylor, director of survey.

Committee of apparatus makers and users.—Chairman, W. D. Collins, Chief, Division of Quality of Water, United States Geological Survey, Washington, D. C.

Committee on geophysics (acting also as the executive committee of the American Geophysical Union, which represents the American Section of the International Union of Geodesy and Geophysics).—Chairman, W. C. Lowdermilk, Assistant Chief, Soil Conservation Service, Washington, D. C.

Committee on passive protection against bombing.—Chairman, R. C. Tolman, dean of the graduate school and professor of physical chemistry and mathematical physics, California Institute of Technology, Pasadena, Calif.

Committee on war use of research facilities.—Chairman, Raymond Stevens, vice president, Arthur D. Little, Inc., Cambridge, Mass.

Ethnogeographic Board (joint board with the American Council of Learned Societies, the Social Science Research Council, and the Smithsonian Institution).—Chairman, Carl E. Guthe.

Committee on Latin American Studies (joint committee with the American Council of Learned Societies and the Social Science Research Council).—Chairman, Robert Redfield, dean of the division of the social sciences and professor of anthropology, University of Chicago, Chicago, Ill.

Committee on microcopying materials for research (joint committee with the American Council of Learned Societies and the Social Science Research Council).—Chairman, Keyes D. Metcalf, director of the university library, Harvard University, Cambridge, Mass.

REPRESENTATIVES OF THE COUNCIL ON—

Editorial board of the Proceedings of the National Academy of Sciences.—Walter H. Bucher, Leonard Carmichael, W. Mansfield Clark, W. F. Durand, Luther P. Eisenhart, Robert F. Griggs, Ross G. Harrison, Lewis H. Weed; member of the editorial executive committee, Ross G. Harrison.

Board of trustees of Science Service.—C. G. Abbot, Ross G. Harrison.

American Documentation Institute.—W. H. Kenerson.

Committee on National Roster of Scientific and Specialized Personnel of the War Manpower Commission.—J. S. Nicholas, Sterling professor of biology and fellow of Trumbull College, Yale University, New Haven, Conn.

Advisory committee of the emergency committee on aid of displaced foreign scholars.—Ross G. Harrison.

American Council of Human Relations.—Ralph Linton, professor of anthropology, Columbia University, New York City.

Joint committee on indexing and abstracting in the major fields of science, of the American Library Association.—W. H. Kenerson.

Committee Z-39 on standardization in the field of library work and documentation, of the American Standards Association.—W. H. Kenerson.

Science committee, National Resources Planning Board (joint representatives of the National Academy of Sciences and the National Research Council).—Leonard Carmichael, Arthur L. Day, Ross. G. Harrison, Dugald C. Jackson, E. B. Wilson.

Arrangements committee for the twenty-fifth session of the International Statistical Institute.—Ross G. Harrison.

Technical board of the Office of Civilian Defense.—Burnham Kelly, assistant executive officer, committee on passive protection against bombing, National Research Council, Washington, D. C.

REPRESENTATIVES OF THE FEDERAL GOVERNMENT

The President of the United States has designated the following representatives of agencies of the Government to serve as members of the National Research Council (in accordance with Executive Order No. 2859, May 11, 1918).

DEPARTMENT OF WAR

Brig. Gen. Charles C. Hillman, Chief, Professional Service Division, Office of the Surgeon General, United States Army.

Col. James S. Simmons, Chief, Preventive Medicine Division, Office of the Surgeon General, United States Army.

Brig. Gen. Gladeon M. Barnes, Office of the Chief of Ordnance, United States Army.

Maj. Gen. Dawson Olmstead, Chief Signal Officer, United States Army.

Maj. Gen. William N. Porter, Chief, Chemical Warfare Service, United States Army.

DEPARTMENT OF JUSTICE

J. Edgar Hoover, Director, Federal Bureau of Investigation.

POST OFFICE DEPARTMENT

Wrightson Chambers, Superintendent, Division of Engineering and Research.

DEPARTMENT OF THE NAVY

Rear Admiral Harold G. Bowen, Technical Aide to the Secretary, United States Navy.

Rear Admiral J. A. Furer, Coordinator of Research and Development, United States Navy.

Capt. J. F. Hellweg, Superintendent, Naval Observatory, Bureau of Navigation, United States Navy.

Capt. S. R. Shumaker, Bureau of Ordnance, United States Navy.

Capt. William Winthrop Hall, Medical Corps, United States Navy.

Rear Admiral Ben Moreell, Chief, Bureau of Yards and Docks, United States Navy.

DEPARTMENT OF THE INTERIOR

W. E. Wrather, Director, Geological Survey.

Ira N. Gabrielson, Director, Fish and Wildlife Service.

DEPARTMENT OF AGRICULTURE

——— ———, Bureau of Agricultural Chemistry and Engineering.

S. H. McCrory, in charge of the Mechanical Processing of Farm Products Research Division, Bureau of Agricultural Chemistry and Engineering.

J. R. Mohler, Chief, Bureau of Animal Industry.

P. N. Annand, Chief, Bureau of Entomology and Plant Quarantine.

E. H. Clapp, Associate Chief, Forest Service.

DEPARTMENT OF COMMERCE

Lyman J. Briggs, Director, National Bureau of Standards.

C. L. Garner, Chief, Division of Geodesy, Coast and Geodetic Survey.

Vernon I. Richard, Supervisor, Patent Office.

DEPARTMENT OF LABOR

Isador Lubin, Commissioner of Labor Statistics.

FEDERAL SECURITY AGENCY

Assistant Surgeon General R. E. Dyer, Director, National Institute of Health, Bethesda, Md.

FEDERAL WORKS AGENCY

Thomas H. MacDonald, Commissioner, Public Roads Administration.

SMITHSONIAN INSTITUTION

C. G. Abbot, Secretary, Smithsonian Institution.

B. Divisions of the Council

I. DIVISION OF FOREIGN RELATIONS

Chairman ex officio, W. B. Cannon.

Vice chairman, Harlow Shapley.

Executive committee.—Chairman, W. B. Cannon; vice chairman, Harlow Shapley; C. G. Abbot, David L. Edsall, Richard M. Field, Herbert E. Gregory.

MEMBERS OF THE DIVISION

EX OFFICIO

President of the National Academy of Sciences, Frank B. Jewett, vice president, American Telephone & Telegraph Co., 195 Broadway, New York City.

Foreign secretary of the National Academy of Sciences, W. B. Cannon, George Higginson professor of physiology, emeritus, Harvard medical school, 20 Prescott St., Cambridge, Mass.

Chairman of the National Research Council and the chairmen of all divisions of the Council.

REPRESENTATIVES OF—

American Association for the Advancement of Science

F. R. Moulton, permanent secretary, American Association for the Advancement of Science, Smithsonian Institution, Washington, D. C.

American Academy of Arts and Sciences

E. B. Wilson, professor of vital statistics, Harvard school of public health, Boston, Mass.

American Philosophical Society

Detlev W. Bronk, professor of biophysics, and director, Johnson Foundation for Research in Medical Physics, University of Pennsylvania, Philadelphia, Pa.

Department of State

Adolf A. Berle, Jr., Assistant Secretary of State, Washington, D. C.

Department of Navy

Rear Admiral J. A. Furer, Coordinator of Research and Development, Navy Department, Washington, D. C.

Department of War

Brig. Gen. Charles C. Hillman, Chief, Professional Service Division, Office of the Surgeon General, War Department, Washington, D. C.

Pan American Union

L. S. Rowe, Director General, Pan American Union, Washington, D. C.

International Astronomical Union

Joel Stebbins, ex officio, chairman, American section, International Astronomical Union; professor of astronomy and director of the Washburn Observatory, University of Wisconsin, Madison, Wis.

International Union of Biological Sciences

Elmer D. Merrill, president of the International Union; Arnold professor of botany, administrator of botanical collections, director of the Arnold arboretum, supervisor of the Bussey Institution, Harvard University, Jamaica Plain, Mass.

International Union of Geodesy and Geophysics

J. E. Church, president, section on hydrology, American Geophysical Union; meteorologist, Nevada State Agricultural Experiment Station, Reno, Nev.

Richard M. Field, past president, American Geophysical Union; associate professor of geology, Princeton University, Princeton, N. J.

John A. Fleming, general secretary, American Geophysical Union; president, Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics; director, department of terrestrial magnetism, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington, D. C.

N. H. Heck president, Association of Seismology, International Union of Geodesy and Geophysics; Chief, Division of Terrestrial Magnetism and Seismology, United States Coast and Geodetic Survey, Washington, D. C.

Walter C. Lowdermilk, president, American Geophysical Union; Assistant Chief, Soil Conservation Service, Washington, D. C.

Thomas G. Thompson, professor of chemistry and director of the oceanographic laboratories, University of Washington, Seattle, Wash.

Paul C. Whitney, president, section on oceanography, American Geophysical Union; Supervisor, Southeastern Division, United States Coast and Geodetic Survey, Norfolk, Va.

International Union of Chemistry

Marston T. Bogert, president of the International Union of Chemistry; professor of chemistry, emeritus, Columbia University, New York City.

International Union of Pure and Applied Physics

L. P. Eisenhart, ex officio, chairman, division of physical sciences, National Research Council; professor of mathematics, and dean of the graduate school, Princeton University, Princeton, N. J.

International Scientific Radio Union

J. H. Dellinger, ex officio, chairman, American section of the International Scientific Radio Union; Chief of the Radio Section, National Bureau of Standards, Washington, D. C.

International Geographical Union

John K. Wright, ex officio, chairman, National Committee of the United States, International Geographical Union; Director, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

International Bureau of Weights and Measures

Lyman J. Briggs, Director, National Bureau of Standards, Washington, D. C.

International Electrotechnical Commission

E. C. Crittenden, Chief, Electrical Division, and Assistant Director, National Bureau of Standards, Washington, D. C.

International Commission on Illumination

E. C. Crittenden, Chief, Electrical Division, and Assistant Director, National Bureau of Standards, Washington, D. C.

MEMBERS AT LARGE

C. G. Abbot, Secretary, Smithsonian Institution, Washington, D. C.

P. G. Agnew, secretary, American Standards Association, 29 West Thirty-ninth Street, New York City.

Arthur H. Compton, Charles H. Swift distinguished service professor of physics, University of Chicago, Chicago, Ill.

David L. Edsall, dean of the faculty of medicine and of the school of public health, emeritus, Harvard University, Tryon, N. C.

Herbert E. Gregory, Silliman professor of geology, emeritus, Yale University; director, emeritus, Bishop Museum of Polynesian Ethnology and Natural History, Honolulu, Hawaii.

Waldo G. Leland, director, American Council of Learned Societies, 1219 Sixteenth Street, N. W., Washington, D. C.

Harlow Shapley, professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

James T. Shotwell, chairman, American National Committee on International Intellectual Cooperation; professor of history, Columbia University, New York City.

Walter T. Swingle, collaborator, United States Bureau of Plant Industry, Washington, D. C.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Committee on Pacific investigations.—Chairman, Herbert E. Gregory.

Editorial committee, Sixth Pacific Science Congress.—Chairman, Charles B. Lipman, professor of plant physiology and dean of the graduate division, University of California, Berkeley, Calif.

COMMITTEES COOPERATING WITH INTERNATIONAL COMMITTEES OF THE PACIFIC SCIENCE ASSOCIATION

American National Committee on Oceanography of the Pacific.—Chairman, Thomas G. Thompson.

American National Committee on Land Classification and Utilization in the Pacific.—Chairman, Carl O. Sauer, professor of geography, University of California, Berkeley, Calif.

American Committee on Pacific Seismology.—Chairman, James B. Macelwane, S. J., professor of geophysics and dean of the graduate school, St. Louis University, St. Louis, Mo.

REPRESENTATIVES OF THE NATIONAL RESEARCH COUNCIL ON—

Council of the Pacific Science Association.—Herbert E. Gregory.

Committee on science and its social relations, of the International Council of Scientific Unions.—Richard M. Field.

II. DIVISION OF EDUCATIONAL RELATIONS

Chairman.—William Charles White.

MEMBERS OF THE DIVISION

William Charles White, chairman of the division; chairman, medical research committee, National Tuberculosis Association; consultant pathologist, National Institute of Health, Bethesda, Md.

EX OFFICIO

Walter H. Bucher, chairman, division of geology and geography, National Research Council; professor of geology, Columbia University, New York City.

W. B. Cannon, chairman, division of foreign relations, National Research Council; George Higginson professor of physiology, emeritus, Harvard Medical School, 20 Prescott Street, Cambridge.

Leonard Carmichael, chairman, division of anthropology and psychology, National Research Council: president, Tufts College, Medford, Mass.

W. Mansfield Clark, chairman, division of chemistry and chemical technology, National Research Council; professor of physiological chemistry, school of medicine, Johns Hopkins University, Baltimore, Md.

W. F. Durand, professor of mechanical engineering, emeritus, Stanford University; chairman, division of engineering and industrial research National Research Council, Washington, D. C.

L. P. Eisenhart, chairman, division of physical sciences, National Research Council; professor of mathematics and dean of the graduate school, Princeton University, Princeton, N. J.

Robert F. Griggs, chairman, division of biology and agriculture, National Research Council; executive officer, department of botany, and chairman of the division of natural sciences, George Washington University, Washington, D. C.

Lewis H. Weed, chairman, division of medical sciences, National Research Council; professor of anatomy and director of the school of medicine, Johns Hopkins University, Baltimore, Md.

MEMBER AT LARGE

Henry A. Barton director, American Institute of Physics, 175 Fifth Avenue, New York City

COMMITTEES

Committee on problems of deafness.—Chairman, Percival Hall, president, Columbia Institution for the Deaf, Washington, D. C.

> Subcommittee on evaluation of individual hearing aids in public schools for the hearing (a joint subcommittee with the committee on scientific aids to learning).—Chairman, Arthur I. Gates, professor of education, teachers college, Columbia University, New York City.
>
> Subcommittee on construction and installation of intelligence and achievement tests.—Chairman, ——— ———.
>
> Subcommittee on intelligence and achievement surveys.—Chairman, Irving S. Fusfeld, dean and professor of psychology in charge of research, Gallaudet College, Washington, D. C.
>
> Subcommittee on screening tests.—Chairman, Harold Westlake, adviser, division of special education, department of public instruction, Harrisburg, Pa.
>
> Subcommittee on remedial measures for the prevention of deafness.—Chairman, Stacy R. Guild, associate professor of otology and director of the otological research laboratory, school of medicine, Johns Hopkins University, Baltimore, Md.
>
> Subcommittee on psychological studies of deafness.—Chairman, Knight Dunlap, professor of psychology, University of California at Los Angeles, Los Angeles, Calif.
>
> Subcommittee on effect of group hearing aids in a particular school for the deaf (a joint subcommittee with the committee on scientific aids to learning.—Chairman, Harvey Fletcher, acoustical research director, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

III. DIVISION OF PHYSICAL SCIENCES

Chairman.—Luther P. Eisenhart.
Vice chairman.—Henry A. Barton.

Executive committee.—Chairman, Luther P. Eisenhart; vice chairman, Henry A. Barton; Raymond C. Archibald, Griffith C. Evans, R. C. Gibbs, Paul W. Merrill, Philip M. Morse, I. I. Rabi.

MEMBERS OF THE DIVISION

Luther P. Eisenhart, chairman of the division; professor of mathematics and dean of the graduate school, Princeton University, Princeton, N. J.

REPRESENTATIVES OF SOCIETIES

American Astronomical Society

Paul W. Merrill, astronomer, Mount Wilson Observatory, Pasadena, Calif.

Jan Schilt, Rutherford professor of astronomy and director of the Rutherford Observatory, Columbia University, New York City.

American Physical Society

William V. Houston, professor of physics, California Institute of Technology, Pasadena, Calif.

Philip M. Morse, associate professor of physics, Massachusetts Institute of Technology, Cambridge, Mass.

Henry D. Smyth, professor of physics and head of the department of physics, Princeton University, Princeton, N. J.

J. H. Van Vleck, professor of physics, Harvard University, Cambridge, Mass.

American Mathematical Society

Griffith C. Evans, professor of mathematics, University of California, Berkeley, Calif.

Francis D. Murnaghan, professor of mathematics, Johns Hopkins University, Baltimore, Md.

M. H. Stone, professor of mathematics, Harvard University, Cambridge, Mass.

Mathematical Association of America

Thornton C. Fry, mathematician, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Optical Society of America

R. C. Gibbs, professor of physics and chairman of the department of physics' Cornell University, Ithaca, N. Y.

A. H. Pfund, professor of physics, Johns Hopkins University, Baltimore, Md.

Acoustical Society of America

Vern O. Knudsen, professor of physics, University of California at Los Angeles' Los Angeles, Calif.

F. R. Watson, professor of experimental physics, emeritus, University of Illinois; Pasadena, Calif.

American Institute of Physics

Henry A. Barton, vice chairman of the division; director, American Institute of Physics, 175 Fifth Avenue, New York City.

MEMBERS AT LARGE

Raymond C. Archibald, professor of mathematics, Brown University, Providence, R. I.

Detlev W. Bronk, professor of biophysics and director, Johnson Foundation for Research in Medical Physics, University of Pennsylvania, Philadelphia, Pa.

John A. Fleming, director, department of terrestrial magnetism, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington, D. C.

Albert W. Hull, assistant director, Research Laboratory, General Electric Co., Schenectady, N. Y.

Ernest O. Lawrence, professor of physics and director of the radiation laboratory, University of California, Berkeley, Calif.

I. I. Rabi, professor of physics, Columbia University, New York City.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

EXECUTIVE COMMITTEES OF AMERICAN SECTIONS OF INTERNATIONAL UNIONS

International Astronomical Union.—Chairman, Joel Stebbins, professor of astronomy and director of the Washburn Observatory, University of Wisconsin, Madison, Wis.

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[1] Deceased.

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Committee on American registry of pathology.—Chairman, Howard T. Karsner.

Advisory committee on drug addiction.—Chairman, William Charles White, chairman, medical research committee, National Tuberculosis Association; consultant pathologist, National Institute of Health, Bethesda, Md.

Committee on research in endocrinology: Chairman, W. B. Cannon, George Higginson, professor of physiology, emeritus, Harvard medical school, 20 Prescott St., Cambridge, Mass.

Committee for research in problems of sex: Chairman, Robert M. Yerkes, professor of psychobiology, Yale University, New Haven, Conn.

ADVISORY COMMITTEES TO THE SURGEONS GENERAL OF THE WAR AND NAVY DEPARTMENTS AND THE UNITED STATES PUBLIC HEALTH SERVICE

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Liaison representatives from the War and Navy Departments

Brig. Gen. Charles C. Hillman, Office of the Surgeon General, War Department.

Col. James S. Simmons, Office of the Surgeon General, War Department.

Lt. Col. Roger C. Prentiss, Jr., Office of the Surgeon General, War Department.

Rear Admiral Charles S. Stephenson, Bureau of Medicine and Surgery, Navy Department.

1. *Committee on aviation medicine.*—Chairman, Eugene F. DuBois, professor of physiology, Cornell University medical college, New York City.

Advisory commission A to the committee on aviation medicine: Chairman, John K. Lewis, associate professor of medicine, school of medicine, Stanford University, San Francisco, Calif.

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Subcommittee on clothing: Chairman, L. H. Newburgh, professor of clinical investigation in internal medicine, school of medicine, University of Michigan, Ann Arbor, Mich.

Subcommittee on decompression sickness: Chairman, John F. Fulton.

Subcommittee on motion sickness: Chairman, Derek Denny-Brown, director, neurological unit, Boston City Hospital, Boston, Mass.

Subcommittee on oxygen and anoxia: Chairman, Detlev W. Bronk, professor of biophysics, and director of the Eldredge R. Johnson Foundation, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on visual problems: Chairman, Detlev W. Bronk.

2. *Committee on chemotherapeutic and other agents.*—Chairman, Chester S. Keefer, professor of medicine, school of medicine, Boston University, Boston, Mass.

3. *Committee on drugs and medical supplies.*—Chairman, W. W. Palmer, Bard professor of medicine, college of physicians and surgeons, Columbia University, New York City.

Subcommittee on essential drugs: Chairman, Ernest E. Irons, clinical professor of medicine, Rush Medical College, University of Chicago, Chicago, Ill.

Subcommittee on hospital and surgical supplies: Chairman, Evarts A. Graham.

4. *Committee on industrial medicine.*—Chairman, C. D. Selby, medical director, General Motors Corporation, Detroit, Mich.

Subcommittee on armored vehicles: Chairman, George M. Smith, associate professor of anatomy, school of medicine, Yale University, New Haven, Conn.

Subcommittee on personal relationships in industry: Chairman, Lydia Giberson, Metropolitan Life Insurance Co., 1 Madison Ave., New York City.

5. *Committee on medicine.*—Chairman, O. H. Perry Pepper, professor of medicine, school of medicine, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on cardiovascular diseases: Chairman, Paul D. White, lecturer on medicine, Harvard medical school, Boston, Mass.

Subcommittee on clinical investigation: Chairman, J. H. Means, professor of clinical medicine, Harvard medical school, Boston, Mass.

Subcommittee on infectious diseases: Chairman, Francis G. Blake, professor of medicine, Yale University medical school, New Haven, Conn.

Subcommittee on medical nutrition: Chairman, J. S. McLester, professor of medicine, school of medicine, University of Alabama, Birmingham, Ala.

Subcommittee on tropical diseases: Chairman, Henry E. Meleney, professor of preventive medicine, college of medicine, New York University, New York City.

Subcommittee on tuberculosis: Chairman, J. Burns Amberson, Jr., professor of medicine, college of physicians and surgeons, Columbia University, New York City.

Subcommittee on venereal diseases: Chairman, J. Earle Moore, associate professor of medicine, school of medicine, Johns Hopkins University, Baltimore, Md.

6. *Committee on neuropsychiatry.*—Chairman, Winfred Overholser, professor of psychiatry, George Washington University; superintendent, St. Elizabeths Hospital, Washington, D. C.

Subcommittee on neurology: Chairman, Foster Kennedy, professor of clinical neurology, Cornell University medical college, New York City.

Subcommittee on personnel-training: Chairman, Harry Steckel, professor of psychiatry, school of medicine, Syracuse University, Syracuse, N. Y.

Subcommittee on psychiatry: Chairman, Arthur H. Ruggles, superintendent, Butler Hospital, Providence, R. I.

Subcommittee on war neuroses: Chairman, Tracy J. Putnam, professor of neurology and neurosurgery, college of physicians and surgeons, Columbia University, New York City.

7. *Committee on sanitary engineering.*—Chairman, Abel Wolman, professor of sanitary engineering, Johns Hopkins University, Baltimore, Md.

8. *Committee on pathology.*—Chairman, Howard T. Karsner.

9. *Committee on shock and transfusions.*—Chairman, Walter B. Cannon, professor of physiology, emeritus, Harvard medical school, 20 Prescott St., Cambridge, Mass.

Subcommittee on blood substitutes: Chairman, Robert F. Loeb.

Subcommittee on shock: Chairman, Alfred Blalock.

10. *Committee on surgery:* Chairman, Evarts A. Graham, professor of surgery, school of medicine, Washington University, St. Louis, Mo.

Subcommittee on anesthesia: Chairman, Ralph M. Waters, professor of anesthesiology, school of medicine, University of Wisconsin, Madison, Wis.

Subcommittee on burns: Chairman, Allen O. Whipple, Valentine Mott professor of surgery, college of physicians and surgeons, Columbia University, New York City.

Subcommittee on neurosurgery: Chairman, Howard C. Naffziger, professor of surgery, school of medicine, University of California, San Francisco, Calif.

Subcommittee on ophthalmology: Chairman, Harry S. Gradle, professor of ophthalmology, Northwestern University school of medicine, Chicago, Ill.

Subcommittee on orthopedic surgery: Chairman, George E. Bennett, associate professor of orthopedic surgery, school of Medicine, Johns Hopkins University, Baltimore, Md.

Subcommittee on physical therapy: Chairman, John S. Coulter, associate professor of physical therapy, school of medicine, Northwestern University, Chicago, Ill.

Subcommittee on plastic and maxillo-facial surgery: Chairman, Robert H. Ivy, professor of maxillo-facial surgery, school of medicine, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on radiology: Chairman, A. C. Christie, professor of clinical radiology, school of medicine, Georgetown University, Washington, D. C.

Subcommittee on surgical infections: Chairman, Frank L. Meleney, associate professor of clinical surgery, college of physicians and surgeons, Columbia University, New York City.

Subcommittee on thoracic surgery: Chairman, Evarts A. Graham.

Subcommittee on urology: Chairman, Herman L. Kretschmer, professor of surgery (genito-urinary), Rush Medical College, Chicago, Ill.

Subcommittee on vascular injuries: Chairman, John Homans, professor of clinical surgery, Harvard medical school, Boston, Mass.

11. Committee on treatment of gas casualties.—Chairman, Milton C. Winternitz, Anthony N. Brady professor of pathology, school of medicine, Yale University, New Haven, Conn.

12. Committee on information.—Chairman, Morris Fishbein, assistant clinical professor of medicine, Rush Medical College; editor, Journal of the American Medical Association, 535 North Dearborn Street, Chicago, Ill.:

> Subcommittee on historical records: Chairman, John F. Fulton, Sterling professor of physiology, school of medicine, Yale University, New Haven, Conn.
>
> Subcommittee on publicity: Chairman, Morris Fishbein.

VIII. DIVISION OF BIOLOGY AND AGRICULTURE

Chairman.—Robert F. Griggs.

Vice chairman.—L. A. Maynard.

Executive secretary.—Douglas M. Whitaker.

Executive committee.—Chairman, Robert F. Griggs; vice chairman, L. A. Maynard; D. E. Minnich, Nathan R. Smith.

MEMBERS OF THE DIVISION

Robert F. Griggs, chairman of the division; executive officer, department of botany, and chairman of the division of natural sciences, George Washington University, Washington, D. C.

REPRESENTATIVES OF SOCIETIES

American Association of Economic Entomologists

C. E. Palm, professor of entomology, Cornell University, Ithaca, N. Y.

American Dairy Science Association

O. E. Reed, Chief, Bureau of Dairy Industry, United States Department of Agriculture, Washington, D. C.

American Genetic Association

Marcus Rhoades, associate professor of botany, Columbia University, New York City.

American Institute of Nutrition

L. A. Maynard, vice chairman of the division; director, school of nutrition and professor of animal nutrition, Cornell University, Ithaca, N. Y.

American Physiological Society

McKeen Cattell, associate professor of pharmacology, Cornell University medical college, New York City.

American Phytopathological Society

H. P. Barss, principal botanist, Office of Experiment Stations, United States Department of Agriculture, Washington, D. C.

American Society of Agronomy

R. M. Salter, Chief, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C.

American Society of Animal Production

H. W. Marston, senior animal husbandman, Office of Experiment Stations, United States Department of Agriculture, Washington, D. C.

American Society of Biological Chemists

Colonel Paul E. Howe, Food and Nutrition Subdivision, Professional Service Division, Office of the Surgeon General, United States Army, Washington, D. C.

American Society for Horticultural Science

E. C. Auchter, Administrator, Agricultural Research Administration, United States Department of Agriculture, Washington, D. C.

American Society of Mammalogists

Remington Kellogg, Assistant Curator, Division of Mammals, Smithsonian Institution, Washington, D. C.

American Society of Parasitologists

W. W. Cort, professor of helminthology, school of hygiene and public health, Johns Hopkins University, Baltimore, Md.

Willard H. Wright, senior zoologist, National Institute of Health, Bethesda, Md.

American Society of Plant Physiologists

F. P. Cullinan, Senior Pomologist, Division of Fruit and Vegetable Crops and Diseases, Beltsville Research Center, United States Department of Agriculture, Beltsville, Md.

American Veterinary Medical Association

H. H. Dukes, professor of veterinary physiology, New York State veterinary college, Cornell University, Ithaca, N. Y.

American Society of Zoologists

D. E. Minnich, professor of zoology, University of Minnesota, Minneapolis, Minn.

Botanical Society of America

Arthur J. Eames, professor of botany, Cornell University, Ithaca, N. Y.

Ecological Society of America

Ira N. Gabrielson, Chief, Fish and Wildlife Service, United States Department of the Interior, Washington, D. C.

Entomological Society of America

E. O. Essig, professor of entomology, University of California, Berkeley, Calif.

Genetics Society of America

Merle T. Jenkins, principal agronomist in charge of corn investigation, United States Bureau of Plant Industry, Washington, D. C.

Limnological Society of America

Chancey Juday, professor of limnology and director of the limnological laboratory, University of Wisconsin, Madison, Wis.

Mycological Society of America

F. A. Wolf, professor of botany, Duke University, Durham, N. C.

Poultry Science Association

M. A. Jull, professor of animal husbandry, University of Maryland, College Park, Md.

Society of American Bacteriologists

Nathan R. Smith, senior bacteriologist, Bureau of Plant Industry, United States Department of Agriculture, Washington, D. C.

Society of American Foresters

C. F. Korstian, dean of the school of forestry, Duke University, Durham, N. C.

MEMBERS AT LARGE

R. E. Coker, professor of zoology, and chairman of the division of natural sciences, University of North Carolina, Chapel Hill, N. C.

A. C. Redfield, professor of physiology and tutor in the department of biology, Harvard University, Cambridge, Mass.

E. W. Sinnott, Sterling professor of botany, and director, Osborn botanical laboratory, Yale University, New Haven, Conn.

LIAISON MEMBERS FROM THE GROUP OF DESIGNATED REPRESENTATIVES OF THE GOVERNMENT

P. N. Annand, Chief, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D. C.

E. H. Clapp, Associate Chief, Forest Service, United States Department of Agriculture, Washington, D. C.

Ira N. Gabrielson, Director, Fish and Wildlife Service, United States Department of the Interior, Washington, D. C.

J. R. Mohler, Chief, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Advisory committee to the division.—C. E. Allen, R. E. Coker, L. J. Cole, William Crocker, W. C. Curtis, B. M. Duggar, R. A. Harper, L. R. Jones, I. F. Lewis, Frank R. Lillie, C. E. McClung, Fernandus Payne, Lorande L. Woodruff, A. F. Woods.

FOOD AND NUTRITION BOARD

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Committee on diagnosis and pathology of nutritional deficiencies.—Chairman, H. D. Kruse, research division, Milbank Memorial Fund, 40 Wall Street, New York City.

Committee on dietary allowances.—Chairman, Lydia J. Roberts, professor of nutrition and chairman of the department of home economics and household administration, University of Chicago, Chicago, Ill.

Committee on fats.—Chairman, L. A. Maynard.

Committee on food composition.—Chairman, C. A. Elvehjem, professor of biochemistry, University of Wisconsin, Madison, Wis.

Committee on medical nutrition (this is also a subcommittee of the division of medical sciences).—Chairman, James S. McLester, professor of medicine, school of medicine, University of Alabama, Birmingham, Ala.

Committee on milk.—Chairman, L. A. Maynard.

Committee on nutritional aspects of ageing.—Chairman, Russell M. Wilder, professor of medicine, graduate school of medicine, University of Minnesota, Mayo Clinic, Rochester, Minn.

Committee on nutrition in industry.—Chairman, Frank G. Boudreau.

Committee on procurement.—Chairman, C. G. King, scientific director, Nutrition Foundation, Inc., Chrysler Building, New York City.

Committee on protein foods.—Chairman, W. C. Rose, professor of biochemistry, University of Illinois, Urbana, Ill.

Committee on research personnel.—Chairman, C. A. Elvehjem.

Committee on vegetables and fruits.—Chairman, L. A. Maynard.

Committee on wartime diet.—Chairman, H. C. Sherman, Mitchill professor of chemistry, Columbia University, New York City.

OTHER COMMITTEES OF THE DIVISION

Committee on fellowships.—Chairman, Robert F. Griggs.

Committee on aërobiology.—Chairman, E. C. Stakman, professor of plant pathology, University of Minnesota, University Farm, St. Paul, Minn.

Committee on animal health.—Chairman, G. H. Hart, professor of animal husbandry, University of California, Davis, Calif.

Committee on animal nutrition.—Chairman, L. A. Maynard.

Committee on applications of the electron microscope.—Chairman, Stuart Mudd.

Committee on biological processes of ageing.—Chairman, A. J. Carlson, Frank P. Hixon distinguished service professor of physiology, emeritus, University of Chicago, Chicago, Ill.

Committee on crop protection.—Chairman, E. C. Stakman.

Committee on the ecology of animal populations.—Chairman, W. C. Allee, professor of zoology, University of Chicago, Chicago, Ill.

Committee on Forestry (joint committee with the Society of American Foresters).—Chairman, Henry S. Graves, dean of the school of forestry and Sterling professor of forestry, emeritus, Yale University, New Haven, Conn.

Committee on genetics of pathogenic organisms.—Chairman, E. C. Stakman.

Committee on human heredity.—Chairman, Laurence H. Snyder, professor of zoology and chairman of the department of zoology and entomology, Ohio State University, Columbus, Ohio.

Committee on the maintenance of pure genetic strains.—Chairman, Leslie T. Webster, member, Rockefeller Institute for Medical Research, Sixty-sixth Street and York Avenue, New York City.

Committee on National Livestock and Meat Board grants.—Chairman, Colonel Paul E. Howe.

Committee on preservation of natural conditions.—Chairman, H. E. Anthony, curator of mammalogy, American Museum of Natural History, New York City.

Committee on wartime modification of the curriculum in biology.—Chairman, Ernest L. Stover, professor of botany, Eastern Illinois State Teachers College, Charleston, Ill.

American section, International Union of Biological Sciences.—The division of biology and agriculture acts as the American section of the International Union of Biological Sciences.

REPRESENTATIVES OF THE DIVISION ON—

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A. F. Blakeslee, A. J. Carlson, H. B. Goodrich, D. D. Irish.

Institute for Research in Tropical America

Robert F. Griggs, ex officio.

Board of Governors, Crop Protection Institute

Harold T. Cook.

IX. DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

Chairman.—Leonard Carmichael.

Vice chairman.—F. M. Setzler,

Executive committee.—Chairman, Leonard Carmichael; vice chairman, F. M. Setzler; Henry E. Garrett, Ralph Linton.

Members of the Division

REPRESENTATIVES OF SOCIETIES

American Anthropological Association

C. S. Coon, associate professor of anthropology and assistant curator of Old World ethnology, Harvard University, Cambridge, Mass.

D. S. Davidson, assistant professor of anthropology, University of Pennsylvania, Philadelphia, Pa.

Fred Eggan, assistant professor of anthropology, University of Chicago, Chicago, Ill.

Carl E. Guthe, director of university museums, and director of the museum of anthropology, University of Michigan, Ann Arbor, Mich.

Clyde H. M. Kluckhohn, associate professor of anthropology, Harvard University, Cambridge, Mass.

George P. Murdock, professor of anthropology, Yale University, New Haven, Conn.

R. L. Olson, associate professor of anthropology, University of California, Berkeley, Calif.

F. M. Setzler, vice chairman of the division; head curator, Department of Anthropology, United States National Museum, Washington, D. C.

M. W. Stirling, Chief, United States Bureau of American Ethnology, Smithsonian Institution, Washington, D. C.

American Psychological Association

Gordon W. Allport, associate professor of psychology, Harvard University, Cambridge, Mass.

Elmer K. Culler, professor of psychology and director of the psychological laboratory, University of Rochester, Rochester, N. Y.

Karl M. Dallenbach, professor of psychology, Cornell University, Ithaca, N. Y.

Joy P. Guilford, professor of psychology, University of Southern California, Los Angeles, Calif.

Edwin R. Guthrie, professor of psychology, University of Washington, Seattle, Wash.

Harold E. Jones, professor of psychology and director of the institute of child welfare, University of California, Berkeley, Calif.

Norman R. F. Maier, associate professor of psychology, University of Michigan, Ann Arbor, Mich.

K. F. Muenzinger, professor of psychology, University of Colorado, Boulder, Colo.

Dael L. Wolfle, assistant professor of psychology, University of Chicago, Chicago, Ill.

MEMBERS AT LARGE

Leonard Carmichael, chairman of the division; president, Tufts College, Medford, Mass.

Fay-Cooper Cole, professor of anthropology, University of Chicago, Chicago, Ill.

Henry E. Garrett, associate professor of psychology, Columbia University, New York City.

Ralph Linton, professor of anthropology, Columbia University, New York City.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Committee on classification of military personnel advisory to the Adjutant General's Office.—Chairman, Walter V. Bingham, Personnel Research Section, War Department, Washington, D. C.

Committee on African anthropology.—Chairman, M. J. Herskovits, professor of anthropology, Northwestern University, Evanston, Ill.

Committee on the anthropology of Oceania.—Chairman, George P. Murdock.

Committee on basic needs in American archaeology.—Chairman, W. Duncan Strong, associate professor of anthropology, and director of the archaeological laboratory, Columbia University, New York City.

Committee on child development.—Chairman, R. S. Woodworth, professor of psychology, Columbia University, New York City.

Emergency committee in psychology.—Chairman, Karl M. Dallenbach, professor of psychology, Cornell University, Ithaca, N. Y.

Office of psychological personnel: Executive director, Steuart H. Britt, National Research Council, Washington, D. C.

Subcommittee on learning and training: Chairman, M. R. Trabue, dean, college of education, Pennsylvania State College, State College, Pa.

Subcommittee on listing of personnel in psychology: Chairman, Steuart H. Britt.

Subcommittee on perceptual problems: Chairman, E. G. Wever, professor of psychology, Princeton University, Princeton, N. J.

Subcommittee on problems of mental deficiency: Chairman, E. A. Doll, director of research, Training School, Vineland, N. J.

Subcommittee on psychological aspects of readjustment: Chairman, H. E. Burtt, professor of psychology, Ohio State University, Columbus, Ohio.

Subcommittee on services of women psychologists in the emergency: Chairman, Ruth S. Tolman, technical assistant, United States Department of Agriculture, Washington, D. C.

Subcommittee on survey and planning: Chairman, Robert M. Yerkes, professor of psychobiology, Yale University, New Haven, Conn.

Subcommittee on a textbook on military psychology: Chairman, Edwin G. Boring, professor of psychology, Harvard University, Cambridge, Mass.

Committee on fellowships.—Chairman, Leonard Carmichael.

Committee on food habits.—Chairman, Carl E. Guthe.

Committee on Latin-American anthropology.—Chairman, Wendell C. Bennett.

Committee on Latin-American psychology.—Chairman, J. G. Beebe-Center, lecturer in psychology, Harvard University, Cambridge, Mass.

Committee on problems of neurotic behavior.—Chairman, Walter R. Miles, professor of psychology, school of medicine, Yale University, New Haven, Conn.

Subcommittee on personality inventory: Chairman, Carney Landis, associate professor of psychology, Columbia University; principal research psychologist, New York State Psychiatric Institute and Hospital, New York City.

Committee on selection and training of aircraft pilots.—Chairman, Morris S. Viteles, professor of psychology, University of Pennsylvania, Philadelphia, Pa.

Committee on service personnel—selection and training.—Chairman, John M. Stalnaker, consultant, college entrance examination board, Princeton, N. J.

Subcommittee on oscilloscope operators: Chairman, George K. Bennett, Psychological Corporation, 522 Fifth Avenue, New York City.

Subcommittee on procedures: Chairman, John M. Stalnaker.

Committee on a survey of South American Indians.—Chairman, John M. Cooper, professor of anthropology, Catholic University of America, Washington, D. C.

Committee on war service of anthropologists.—Chairman, Ralph L. Beals, assistant professor of anthropology, University of California at Los Angeles, Los Angeles, Calif.

REPRESENTATIVES OF THE DIVISION ON—

Policy board of the National Indian Institute

John M. Cooper.

Technical Board of the Occupational Analysis Section, United States Employment Service

Paul S. Achilles, W. V. Bingham, Clark L. Hull, F. S. Keller, L. J. O'Rourke, Donald G. Paterson, A. T. Poffenberger, Morris S. Viteles.

5. NATIONAL RESEARCH FELLOWSHIPS

The National Research Council has been entrusted by the Rockefeller Foundation with appropriations to provide for a limited number of postdoctorate fellowships for the purpose of promoting fundamental research in science, primarily in educational and research institutions of the United States. These fellowships are awarded to persons who have demonstrated a high order of ability in research for the purpose of enabling them to obtain additional experience in research at institutions which make adequate provision for effective prosecution of research. Applicants are eligible for appointment who are citizens of the United States or of Canada and, as a rule, who are under 35 years of age and have fulfilled all requirements for the doctor's degree not later than the close of the calendar year in which their applications are filed, or who have had training equivalent to that represented by the doctor's degree. The minimum stipend for these fellowships is $1,800 per year. Under special conditions fellows may be appointed for study abroad.

In addition to fellowships in the general fields of medicine, maintained by the Rockefeller Foundation, the Council also administers fellowships for the study of the filtrable viruses and for investigations in the basic fields related to orthopedic surgery, supported by the National Foundation for Infantile Paralysis, Inc.

A special series of medical fellowships supported by a grant from the Rockefeller Foundation, and known as the Welch Fellowships in Internal Medicine, is also awarded to physicians under 40 years of age who are citizens of the United States and who have demonstrated unusual aptitude and promise of achievement in internal medicine, teaching, and investigation. These fellowships are designed to provide an opportunity for a prolonged period of advanced training in the field of internal medicine. This training may include study and investigation in the basic medical sciences as well as clinical experience, teaching, and research.

Natural Sciences

Fellowships in the following subjects are administered by the National Research Fellowship Board in the Natural Sciences: Physics, astronomy, chemistry, mathematics, geology, paleontology, physical geography, botany, zoology, agriculture, forestry, anthropology, and psychology.

When requested to do so, the board is ready to consider entering into cooperation with universities in the support of participating fellowships by providing a part-time research fellowship in connection with a part-time university instructorship.

MEMBERS OF THE BOARD

Ross G. Harrison, ex officio, chairman of the National Research Council; Sterling professor of biology, emeritus, Yale University, New Haven, Conn. Secretary.

Isaiah Bowman, president, Johns Hopkins University, Baltimore, Md.

M. H. Jacobs, professor of general physiology, school of medicine, University of Pennsylvania, Philadelphia, Pa.

Frank B. Jewett, ex officio, president, National Academy of Sciences; vice president, American Telephone & Telegraph Co., 195 Broadway, New York City.

Duncan A. MacInnes, member, Rockefeller Institute for Medical Research, Sixty-sixth Street and York Avenue, New York City.

John C. Slater, professor of physics, in charge of the department, Massachusetts Institute of Technology, Cambridge, Mass.

Fellowships for 1942–43 have been awarded to the following persons:

IN PHYSICS AND ASTRONOMY

William A. Hiltner
Myron H. Nichols*
Alvin H. Nielsen*
George E. Valley, Jr.*
Harold F. Weaver
Alvin M. Weinberg*
Frank B. Wood*

IN MATHEMATICS

Howard Levi*
Harry T. Muhly*
Claude E. Shannon*
Luther I. Wade, Jr.

IN CHEMISTRY

Elkan R. Blout
Stuart R. Brinkley, Jr.
Richard W. Dodson*
Harry E. Gunning
Julius D. Heldman
Hugh M. Hulburt
Nathan Kornblum
Foil A. Miller

IN GEOLOGY

John N. Adkins*
Elizabeth J. Armstrong
Hubert K. Stephensen*

IN ZOOLOGY

Roland H. Alden*
Thomas H. Allen*
Victor A. Drill
Daniel L. Harris
Charles D. Michener*

IN BOTANY

Harry G. Albaum
Robert T. Brumfield
Byron R. Houston
Herschel Roman*
Arnold H. Sparrow
Roger Y. Stanier*
Alma J. Wiffen

IN ANTHROPOLOGY

Francis E. Randall*

IN PSYCHOLOGY

John W. French*
Merle Lawrence*
Joseph C. R. Licklider*

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*Withdrawn because of war activity.

Medical Sciences

The fellowships in the medical sciences, including those relating to the filtrable viruses and orthopedic surgery, are administered by the Medical Fellowship Board.

Members of the Board

Francis G. Blake, chairman, dean and Sterling professor of medicine, school of medicine, Yale University; physician in chief, New Haven Hospital, New Haven, Conn.

Alfred Blalock, professor of surgery, school of medicine, Johns Hopkins University, Baltimore, Md.

Paul R. Cannon, professor of pathology, University of Chicago, Chicago, Ill.

A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard medical school, Boston, Mass.

Homer W. Smith, professor of physiology and director of the physiological laboratories, New York University college of medicine, New York City.

Lewis H. Weed, ex officio, chairman, division of medical sciences, National Research Council; professor of anatomy, and director of the school of medicine, Johns Hopkins University, Baltimore, Md.

ADDITIONAL MEMBERS FOR THE CONSIDERATION OF THE WELCH FELLOWSHIPS IN INTERNAL MEDICINE

Robert F. Loeb, Lambert professor of medicine, college of physicians and surgeons, Columbia University, New York City.

T. Grier Miller, professor of clinical medicine, school of medicine, University of Pennsylvania, Philadelphia, Pa.

John B. Youmans, associate professor of medicine and director of postgraduate instruction, school of medicine, Vanderbilt University, Nashville, Tenn.

Fellowships for 1942–43 have been awarded to the following persons:

IN FIELDS OF GENERAL MEDICINE

William R. Arrowsmith*
David L. Bassett
L. Royal Christensen
Sidney P. Colowick *
Frank L. Engel
Henry D. Hoberman
Seymour S. Kety
Henry D. Lauson*
Maclyn McCarty*
Joseph Post*
L. James Talbot
Howard F. Wilkins*
James G. Wilson*
George G. Wright, Jr.

IN VIRUS RESEARCH

Seymour S. Cohen*
H. Chandler Elliott
Charles A. Evans*
Robert H. Green*
John L. Peck, Jr.
Jonas E. Salk
John Spizizen*
Joel Warren*

IN ORTHOPEDIC SURGERY

Harold W. Bischoff*
William R. Duncan
Maxwell F. Kepl
Paul S. Rubin
Louis J. Strobino*
C. Laird Wilson*

WELCH FELLOWSHIP IN INTERNAL MEDICINE

A. McGehee Harvey (Deferred)

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*Withdrawn because of war activity.

6. MEMBERS OF THE NATIONAL RESEARCH COUNCIL, 1942–43

Abbot, C. G., Smithsonian Institution, Washington, D. C.
Adams, C. A., Edward G. Budd Manufacturing Co., Philadelphia, Pa.
Agnew, P. G., American Standards Association, 29 West 39th St., New York City.
Allport, Gordon W., Harvard University, Cambridge, Mass.
Annand, P. N., United States Bureau of Entomology and Plant Quarantine, Washington, D. C.
Archibald, R. C., Brown University, Providence, R. I.
Auchter, E. C., United States Bureau of Plant Industry, Washington, D. C.
Austin, J. Harold, school of medicine, University of Pennsylvania, Philadelphia, Pa.
Bailey, E. G., Babcock & Wilcox Co., New York City.
Barnes, Brigadier General Gladeon M., Office of the Chief of Ordnance, War Department, Washington, D. C.
Barss, H. P., Office of Experiment Stations, United States Department of Agriculture, Washington, D. C.
Bartlett, Paul D., Harvard University, Cambridge, Mass.
Barton, Henry A., American Institute of Physics, New York City.
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Bowen, Isaiah, Johns Hopkins University, Baltimore, Md.
Bradley, Wilmot H., United States Geological Survey, Washington, D. C.
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Briggs, Lyman J., National Bureau of Standards, Washington, D. C.
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Bucher, Walter H., Columbia University, New York City.
Buckley, Oliver E., Bell Telephone Laboratories, Inc., New York City.
Burbank, W. S., United States Geological Survey, Washington, D. C.
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Cattell, McKeen, Cornell University Medical School, New York City.
Chadwell, Harris M., Tufts College, Medford, Mass.
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Compton, Arthur H., University of Chicago, Chicago, Ill.
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Conklin, E. G., American Philosophical Society, Philadelphia, Pa.
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Garrett, Henry E., Columbia University, New York City.
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Graham, Evarts A., school of medicine, Washington University, St. Louis, Mo.
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Griggs, Robert F., George Washington University, Washington, D. C.
Gross, Paul M., Duke University, Durham, N. C.
Guilford, Joy P., University of Southern California, Los Angeles, Calif.
Guthe, Carl E., University of Michigan, Ann Arbor, Mich.
Guthrie, Edwin R., University of Washington, Seattle, Wash.
Harrison, Ross G., Yale University, New Haven, Conn.
Hartshorne, Richard, University of Wisconsin, Madison, Wis.
Hastings, A. Baird, Harvard Medical School, Boston, Mass.
Heck, Captain N. H., United States Coast and Geodetic Survey, Washington, D. C.
Hellweg, Captain J. F., United States Naval Observatory, Washington, D. C.
Hillman, Brigadier General Charles C., Office of the Surgeon General, War Department, Washington, D. C.
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Johnston, John, United States Steel Corporation, Kearny, N. J.
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Kellogg, Remington, Smithsonian Institution, Washington, D. C.
Kerr, Paul F., Columbia University, New York City.
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Knudsen, Vern O., University of California at Los Angeles, Los Angeles, Calif.
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Merrill, Paul W., Mount Wilson Observatory, Pasadena, Calif.
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Minnich, D. E., University of Minnesota, Minneapolis, Minn.
Mohler, J. R., United States Bureau of Animal Industry, Washington, D. C.
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Moreell, Rear Admiral Ben, Bureau of Yards and Docks, Navy Department, Washington, D. C.
Morey, George W., Corning Glass Works, Parkersburg, W. Va.
Simmons, Colonel James S., Office of the Surgeon General, War Department, Washington, D. C.
Singewald, Joseph T., Jr., Johns Hopkins University, Baltimore, Md.
Sinnott, E. W., Yale University, New Haven, Conn.
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Smith, Nathan R., United States Bureau of Plant Industry, Washington, D. C.
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Stebbins, Joel, Washburn Observatory, University of Wisconsin, Madison, Wis.
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Wolfle, Dael L., University of Chicago, Chicago, Ill.
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Wright, John K., American Geographical Society, New York City.
Wright, Theodore P., War Production Board, Washington, D. C.
Wright, Willard H., National Institute of Health, Bethesda, Md.

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79th Congress, 1st Session - - - - - Senate Document N

REPORT OF THE NATIONAL ACADEMY OF SCIENCES

NATIONAL RESEARCH COUNCIL

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FISCAL YEAR
1943–1944

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1945

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LETTER OF TRANSMITTAL

NATIONAL ACADEMY OF SCIENCES,
August 1, 1945.

The Honorable KENNETH McKELLAR,
President pro tempore of the United States Senate.

SIR: I have the honor to transmit to you herewith the annual report of the National Academy of Sciences for the fiscal year ended June 30, 1944.

As is indicated in the prefatory note, preparation of the report has been greatly delayed by extreme press of urgent war work which has demanded the time of the officers of the Academy and National Research Council.

Yours respectfully,

FRANK B. JEWETT, *President.*

ACT OF INCORPORATION

AN ACT To incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard,[1] at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden,[2] Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren,[2] United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Englemann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Giles,[3] United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherfurd, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California; their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

SEC. 2. *And be it further enacted*, That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, bylaws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division into classes, and all other matters needful or usual in such institution, and to report the same to Congress.

SEC. 3. *And be it further enacted*, That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States.

GALUSHA A. GROW,
Speaker of the House of Representatives.
SOLOMON FOOTE,
President of the Senate pro tempore.

Approved, March 3, 1863.
ABRAHAM LINCOLN, *President.*

AMENDMENTS

AN ACT To amend the act to incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National Academy of Sciences, approved March third, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said Academy as provided in said act.

Approved, July 14, 1870.

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[1] The correct name of this charter member was F. A. P. Barnard.
[2] Declined.
[3] The correct name of this charter member was J. M. Gilliss.

AN ACT To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, and its several supplements be, and the same is hereby, authorized and empowered to receive bequests and donations and hold the same in trust, to be applied by the said Academy in aid of scientific investigations and according to the will of the donors.

Approved, June 20, 1884.

AN ACT To amend the act authorizing the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes, approved June twentieth, eighteen hundred and eighty-four, be, and the same is hereby, amended to read as follows:

"That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, be, and the same is hereby, authorized and empowered to receive by devise, bequest, donation, or otherwise, either real or personal property, and to hold the same absolutely or in trust, and to invest, reinvest, and manage the same in accordance with the provisions of its constitution, and to apply said property and the income arising therefrom to the objects of its creation and according to the instructions of the donors: *Provided, however*, That the Congress may at any time limit the amount of real estate which may be acquired and the length of time the same may be held by said National Academy of Sciences."

Sec. 2. That the right to alter, amend, or repeal this act is hereby expressly reserved.

Approved, May 27, 1914.

ANNUAL REPORT OF THE NATIONAL ACADEMY OF SCIENCES

PRESIDENT'S STATEMENT

Extreme press of work in connection with numerous war undertakings requested of the National Academy of Sciences and the National Research Council by various departments of Government has greatly delayed issuance of the annual report for the fiscal year ended June 30, 1944, which normally would have been made about January 1945.

These war jobs have been of widely varying character, have been subject to frequent changes of requirements, and have greatly taxed the limited staff and facilities of the Academy. All have required much work in the selection of the various committees and boards required to be set up and in the negotiation and operation of the contracts by which the costs incurred are reimbursed to the Academy.

Under its congressional act of incorporation the Academy is obligated to assist departments of Government "whenever requested" and to do this "without compensation" but with its actual costs reimbursed to it. Hundreds of the leading scientists, engineers, and physicians of the United States have served on the committees and boards of the Academy and Council without remuneration, and the permanent staff has contributed to the limit of its capacity.

Most of the undertakings have been in classified fields which precludes description of the work while the war lasts. Many have been in the "secret" category, and some have been and are "top secret." For these reasons and also because much of the work is of a continuing character which overlaps two or more fiscal years, it is impossible to make a comprehensive report for any fiscal year, except as to those fiscal and other matters which are definitely on an annual basis. These are covered in the appended reports.

As soon as the war is over and the restrictions of military security are removed, it is expected that a complete report of the work done during the war years can be issued. Even then, however, some material may have to be omitted because of its importance to national security.

During the fiscal year 1944 the Academy held two regular meetings as usual. Following the procedure of earlier war years no scientific papers were presented, however, and the meetings were executive in character. In order that classified subjects might be discussed attendance was limited to members of the Academy and chairmen and members of Academy and Council committees and to other invited persons. At both meetings general reports on the scientific problems of the war were given by ranking scientists and military men. At one meeting presentation was from the point of view of civilian science and at the other from that of top military strategy.

During the year every available foot of space in the Academy-Research Council building, including a major part of the basement, was conditioned and made available for our own war efforts and for certain of those of the Office of Scientific Research and Development and the War Department.

The relations between the Academy and Council and OSRD have, from the beginning, been particularly close. This is especially the case in the fields of medical sciences, in metallurgy, and in the numerous problems of a scientific character which confront the Quartermaster Corps.

In addition to cooperation on a wide range of scientific problems—many of large size—carried on under contract, OSRD was authorized by Congress to pay the excess overhead costs incurred by the Academy and not otherwise reimbursed, in connection with its work for all departments of Government.

This provision has been most helpful, since it has localized in a single executive department of Government ascertainment of an item of actual cost to the Academy but which has always been troublesome in the operation of separate contracts with a considerable number of departments. The trouble arose out of the difficulty of determining the "actual cost" of overhead expense under the "no compensation" provisions of the act of incorporation which was allocable to each individual contract. Concentration of this item in a single agency has minimized this difficulty and greatly facilitated the work of the Academy.

Probably the most important nonwar action taken during 1944 was the establishment of a comprehensive pension plan for all employees of the Academy (including those of the Research Council and other agencies which might be set up later).

As a result of a comprehensive study by a special committee assisted by outside experts the Council adopted a pension plan which became effective on July 1, 1944, and which is designed to make provision for the financial needs of employees when they reach the age of retirement.

The provisions of the plan were incorporated in a formal instrument, National Academy of Sciences Retirement Pension Trust Agreement. Under this agreement the individual employee and the Academy-Council make regular contributions but with the employer assuming the greater part of the financial burden.

The plan provides that a full-time employee, as of July 1, 1944, becomes eligible for membership after completion of 2 years continuous service, provided he or she is then not over 60½ years of age. For existing employees as of July 1, 1944, membership is optional. For all new employees after that date membership is to be a condition of employment. Under the plan the normal retirement age was established at 65, with the Academy reserving the right to extend employment and defer retirement yearly after age of 65 but not beyond age 70.

When the plan became operative on July 1, 1944, there were 27 participating members. The present number is 35. Individual contracts are issued by an insurance company and are lodged with the trustees provided for in the plan. These trustees are the owners-at-law of all the contracts and other trust assets. They are charged with administering the same in conformity with and solely for the purpose of carrying out the terms of the trust agreement.

At the same time that the Council of the Academy approved the contributory plan outlined above, it also took action to provide for those employees who had served the Academy and Council for many years but whose age was such that they could not be treated equitably under a general plan designed primarily for younger persons. Retirements for such employees were scheduled and appropriate pensions were provided for from the general funds of the Academy-Research Council.

Two valued employees of long service in this category were retired on June 30, 1944. One, Mr. Paul Brockett, for many years executive secretary of the Academy and custodian of buildings and grounds, who had reached the 70-year age limit; the other, Mr. J. H. J. Yule, for many years the bursar of the Academy and Council, who retired at his own request before reaching 65.

Later Mrs. Neva Reynolds, long secretary of the fellowship board of the Council, also retired.

While the pension plan is adequate for the great majority of the employees, there is at present a moderate unfunded liability in the case of certain long-service employees. These are those who, while under 60½ years of age and so participants in the plan, have insufficient prospective service before reaching age 65 to permit accumulation of a full pension. Liquidation of this past service liability will have to wait the availability of additional funds.

Although not really a part of major operations for the fiscal year 1944, the satisfactory progress of the war by July 1 had already begun to indicate its termination and a coming liquidation of OSRD and other war agencies. This prospect raised questions of permanent continuation on a reduced peacetime scale of certain important scientific work. There was indication that the Academy and Council, as permanent agencies created by Government, would be requested to assume responsibility in several fields.

During the early part of the 1945 fiscal year several of these materialized as definite requests and will be reported in the 1945 report. Among them were a joint request of the Secretaries of War and Navy that the Academy establish a research board for national security to carry on fundamental scientific research of direct interest to enhanced national security, and a request from numerous Government departments that the Academy and Council set up a permanent advisory committee on insect and rodent control.

The experience gained in 5 years of war operation has put the Academy and Council in a much better position than formerly to carry on effectively a greatly enlarged program of both governmental and nongovernmental service.

FRANK B. JEWETT, *President.*

JULY 15, 1945.

MEETINGS OF THE NATIONAL ACADEMY

AUTUMN MEETING, 1943

The 1943 autumn meeting of the National Academy of Sciences was held on November 22, 1943.

BUSINESS SESSION

Sixty-two members responded to roll call, as follows:

Abbot, C. G.
Adams, L. H.
Barbour, Thomas
Beams, J. W.
Bogert, Marston T.
Bowen, Norman L.
Breit, G.
Briggs, Lyman J.
Bronk, Detlev W.
Buckley, Oliver E.
Bush, V.
Cannon, W. B.
Carlson, A. J.
Carmichael, Leonard
Clark, W. Mansfield
Coblentz, W. W.
Cohn, Edwin J.
Compton, Karl T.
Corner, George W.
Cottrell, F. G.
Day, Arthur L.
DuBridge, L. A.
Durand, W. F.
Fenn, Wallace O.
Fieser, Louis F.
Forbes, Alexander
Fred, E. B.
Harrison, Ross G.
Hastings, A. Baird
Hewett, D. F.
Hudson, Claude S.
Hunsaker, J. C.
Hunter, Walter S.
Jeffries, Zay
Jewett, Frank B.
Langmuir, Irving
Lauritsen, Charles C.
Leith, C. K.
Lewis, W. K.
Longcope, Warfield T.
Longwell, Chester R.
Loomis, Alfred L.
MacNider, William deB.
Mendenhall, W. C.
Miles, Walter R.
Mitchell, S. A.
Moulton, F. R.
Noyes, W. Albert, Jr.
Parker, G. H.
Rabi, I. I.
Richards, Alfred N.
Robbins, William J.
Shapley, Harlow
Small, Lyndon F.
Stanley, W. M.
Swanton, John R.
Thom, Charles
Vaughan, T. Wayland
Wilson, E. B.
Wright, F. E.
Yerkes, Robert M.
Zworykin, V. K.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE ANNUAL MEETING

Members

Harry Gideon Wells, born July 21, 1875; elected to the Academy in 1925; died April 26, 1943.

James Ewing, born December 25, 1866; elected to the Academy in 1935; died May 16, 1943.

Henry Seely White, born May 20, 1861; elected to the Academy in 1915; died May 20, 1943.

Edward Burr Van Vleck, born June 7, 1863; elected to the Academy in 1911; died June 3, 1943.

Karl Landsteiner, born June 14, 1868; elected to the Academy in 1932; died June 26, 1943.

Frank Schlesinger, born May 11, 1871; elected to the Academy in 1916; died July 10, 1943.

William Fogg Osgood, born March 10, 1868; elected to the Academy in 1904; died July 22, 1943.

Aleš Hrdlička, born March 29, 1869; elected to the Academy in 1921; died September 5, 1943.

Frank Leverett, born March 10, 1859; elected to the Academy in 1929; died November 15, 1943.

Member emeritus

Joseph Sweetman Ames, born July 3, 1864; elected to the Academy in 1909; died June 24, 1943.

BIOGRAPHICAL MEMOIRS ASSIGNED SINCE THE ANNUAL MEETING

Joseph Sweetman Ames, assigned to Henry Crew.
James Ewing, assigned to James B. Murphy.
Aleš Hrdlička, assigned to Adolph H. Schultz.
Clinton Hart Merriam, reassigned to John C. Merriam.
Harry Gideon Wells, assigned to Ludvig Hektoen.

BIOGRAPHICAL MEMOIRS READ BY TITLE

Ross Aiken Gortner, by S. C. Lind.
Lawrence Joseph Henderson, by W. B. Cannon.
Phoebus Aaron Theodor Levene, by Donald D. Van Slyke and Walter A. Jacobs.
Dayton Clarence Miller, by Harvey Fletcher.
William Albert Setchell, by D. H. Campbell.

TRUST FUND COMMITTEE APPOINTMENT

Benjamin Apthorp Gould Fund.—Joel Stebbins selected as a member of the board of directors of the Gould fund by the surviving directors (Moulton and Adams) to succeed Frank Schlesinger (deceased).

REPORTS OF THE TREASURER AND AUDITING COMMITTEE

The report of the treasurer of the Academy for the fiscal year 1942–43 was presented and upon recommendation by the Council of the Academy was accepted for inclusion in the printed Annual Report of the National Academy of Sciences for that period.

The report of the auditing committee was presented and upon recommendation by the Council of the Academy was accepted for inclusion in the same printed Annual Report.

These reports appeared on pages 59–88 of the Annual Report of the National Academy of Sciences for the fiscal year 1942–43.

GENERAL REPORTS

General reports were presented to the Academy regarding the wartime activities of the following groups in certain fields:

National Academy of Sciences, by Frank B. Jewett.
National Research Council, by Ross G. Harrison.
Office of Scientific Research and Development, by V. Bush.
National Defense Research Committee, by V. Bush.
Film—DUKW, by V. Bush.
Smoke Generators, by Irving Langmuir.
Committee on Medical Research, OSRD, by Alfred N. Richards.
National Advisory Committee for Aeronautics, by J. C. Hunsaker.
Scientific Work in War Production Board, by C. K. Leith.
Minerals, Metals and War Metallurgy, by Zay Jeffries.
Fortification Design, by W. F. Durand.

PRESENTATION OF MEDALS

At the dinner of the Academy held at the Statler Hotel on November 22, 1943, the Daniel Giraud Elliot medal for 1937 with accompanying honorarium of $100 was presented to George Howard Parker.

The Mary Clark Thompson medal for 1941, awarded to David Meredith Seares Watson, was accepted for him by the Right Honorable the Viscount Halifax, British Ambassador.

ANNUAL MEETING, 1944

The National Academy of Sciences held its annual meeting in the Academy Building on April 24, 1944.

BUSINESS SESSION

One hundred and seventeen members responded to roll call, as follows:

Abbot, C. G.
Adams, C. A.
Adams, L. H.
Adams, Roger
Adkins, Homer
Bailey, L. H.
Beams, J. W.
Berkey, Charles P.
Birge, Raymond T.
Birkhoff, George D.
Blakeslee, A. F.
Bogert, Marston T.
Boring, Edwin G.
Bowen, Norman L.
Breit, G.
Briggs, Lyman J.
Bronk, Detlev W.
Buckley, Oliver E.
Bush, V.
Cannon, W. B.
Carlson, A. J.
Carmichael, Leonard
Chamberlin, Rollin T.
Clark, W. Mansfield
Clarke, Hans T.
Cleland, Ralph E.
Coblentz, W. W.
Cohn, Edwin J.
Compton, Arthur H.
Corner, George W.
Cottrell, F. G.
Danforth, C. H.
Day, Arthur L.
Dodge, B. O.
DuBois, Eugene F.
Duggar, B. M.
Dunn, Gano
Durand, W. F.
Eisenhart, L. P.
Elvehjem, C. A.
Emerson, R. A.
Evans, Griffith C.
Fleming, John A.
Fletcher, Harvey
Forbes, Alexander
Fred, E. B.
Gasser, Herbert S.
Harrison, Ross G.
Hastings, A. Baird
Hewett, D. F.
Houston, W. V.
Hudson, Claude S.
Hull, Albert W.
Hunsaker, J. C.
Hunter, Walter S.
Ipatieff, V.
Ives, Herbert E.
Jacobs, M. H.
Jeffries, Zay
Jewett, Frank B.
Jones, D. F.
Kasner, Edward
Kirkwood, John G.
Kunkel, L. O.
Latimer, Wendell M.
Leith, C. K.
Lewis, Warren K.
Longcope, Warfield T.
Longwell, Chester R.
MacInnes, Duncan A.
MacNider, Wm. de B.
Marshall, E. K., Jr.
Marvel, C. S.
Mendenhall, W. C.
Merica, Paul D.
Merrill, E. D.
Merritt, Ernest
Miles, Walter R.
Millikan, R. A.
Mitchell, S. A.
Morse, Marston
Moulton, F. R.
Murnaghan, F. D.
Murphy, James B.
Noyes, W. Albert, Jr.
Opie, Eugene L.
Pillsbury, W. B.
Richards, Alfred N.
Riddle, Oscar
Robbins, William J.
Robertson, O. H.
Rodebush, W. H.
Rous, Peyton
Shapley, Harlow
Sherman, H. C.
Sinnott, Edmund W.
Small, Lyndon F.
Stanley, W. M.
Stone, Marshall H.
Streeter, George L.
Swanton, John R.
Taliaferro, William H.
Tate, John T.
Thom, Charles
Thomas, T. Y.
Tolman, Richard C.
Van Vleck, J. H.
Vaughan, T. Wayland
Veblen, Oswald
Vickery, H. B.
von Karman, Theodore
Waksman, Selman A.
Wilson, E. B.
Wright, F. E.
Wright, Sewall
Yerkes, Robert M.
Zworykin, V. K.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE AUTUMN MEETING

Members

Russell Henry Chittenden, born February 18, 1856; elected to the Academy in 1890; died December 26, 1943.

James McKeen Cattell, born May 25, 1860; elected to the Academy in 1901; died January 20, 1944.

Arthur Keith, born September 30, 1864; elected to the Academy in 1928; died February 7, 1944.

Charles Benedict Davenport, born June 1, 1866; elected to the Academy in 1912; died February 18, 1944.

Yandell Henderson, born April 23, 1873; elected to the Academy in 1923; died February 18, 1944.

Edward Oscar Ulrich, born February 1, 1857; elected to the Academy in 1917; died February 22, 1944.

Leo Hendrik Baekeland, born November 14, 1863; elected to the Academy in 1936; died February 23, 1944.

Douglas Wilson Johnson, born November 30, 1878; elected to the Academy in 1932; died February 24, 1944.

Member emeritus

William George MacCallum, born April 18, 1874; elected to the Academy in 1921; died February 3, 1944.

Foreign associate

Sir David Prain, born July 11, 1857; elected to the Academy in 1920; died March 16, 1944.

BIOGRAPHICAL MEMOIRS ASSIGNED SINCE THE AUTUMN MEETING

Henry Van Peters Wilson, assigned to Ross G. Harrison.
Ralph Modjeski, assigned to W. F. Durand.
Clinton Hart Merriam, reassigned to W. H. Osgood.
Henry Seely White, assigned to Arthur B. Coble.
Karl Landsteiner, assigned to Oswald T. Avery.
Frank Schlesinger, assigned to Dirk Brouwer (nonmember).
William Fogg Osgood, assigned to Joseph L. Walsh.
Frank Leverett, assigned to W. H. Hobbs (nonmember).
Russell Henry Chittenden, assigned to H. B. Vickery.
James McKeen Cattell, reassigned to W. B. Pillsbury.
William George MacCallum, assigned to Warfield T. Longcope.
Arthur Keith, assigned to Chester R. Longwell.
Yandell Henderson, assigned to Alexander Forbes.
Charles Benedict Davenport, assigned to Oscar Riddle.
Edward Oscar Ulrich, assigned to Rudolph Ruedemann.
Leo Hendrik Baekeland, assigned to C. F. Kettering.
Douglas Wilson Johnson, assigned to Walter H. Bucher.

BIOGRAPHICAL MEMOIRS READ BY TITLE

Joseph Sweetman Ames, by Henry Crew.
Frank Leverett, by W. H. Hobbs.

APPOINTMENTS

Tellers to count the preference ballots: T. Wayland Vaughan, chairman, L. H. Adams, and Richard C. Tolman.

Auditing committee: W. C. Mendenhall, chairman, Arthur L. Day, and John R. Swanton.

TRUST FUND COMMITTEE APPOINTMENTS

Henry Draper Fund.—Reappointment of Otto Struve as member for the 5-year term ending with the annual meeting in 1949.

J. Lawrence Smith Fund.—L. H. Adams to succeed Charles Palache as member for the 5-year term ending with the annual meeting in 1949.

Barnard medal for meritorious service to science.—Edwin Hubble to succeed W. R. Whitney as chairman.

Cyrus B. Comstock Fund.—C. J. Davisson to succeed Ernest O. Lawrence as chairman; term as member ending with the annual meeting in 1946. V. Bush to succeed Ernest O. Lawrence as member for the 5-year term ending with the annual meeting in 1949.

Marsh Fund.—Warren J. Mead to succeed Eliot Blackwelder as member for the 5-year term ending with the annual meeting in 1949.

Murray Fund.—Henry B. Bigelow to succeed Thomas Barbour as member for the 3-year term ending with the annual meeting in 1947.

Marcellus Hartley Fund.—William J. Robbins to succeed J. B. Whitehead as chairman. Term as member ending with the annual meeting in 1945. A. R. Dochez to succeed J. B. Whitehead as member for the 3-year term ending with the annual meeting in 1947. John T. Tate to succeed Karl T. Compton as member for the 3-year term ending with the annual meeting in 1947.

Mary Clark Thompson Fund.—W. H. Bucher to succeed T. Wayland Vaughan as chairman. Term as member ending with the annual meeting in 1946. E.

Blackwelder to succeed T. Wayland Vaughan as member for the 3-year term ending with the annual meeting in 1947.

Joseph Henry Fund.—Walter R. Miles to succeed John C. Slater as chairman. Term as member ending with the annual meeting in 1945. Raymond T. Birge to succeed John C. Slater as member for the 5-year term ending with the annual meeting in 1949.

Charles Doolittle Walcott Fund.—W. H. Buch[illegible]r to succeed E. O. Ulrich (deceased).

John J. Carty Fund.—James B. Murphy to succeed E. D. Merrill as member for the 5-year term ending with the annual meeting in 1949.

SECTION CHAIRMEN ELECTED BY THE SECTIONS FOR THE 3-YEAR TERM ENDING WITH THE ANNUAL MEETING IN 1947

Section of astronomy.—F. R. Moulton (to succeed W. H. Russell).
Section of engineering.—Zay Jeffries (to succeed O. E. Buckley).
Section of chemistry.—C. S. Marvel (to succeed Linus Pauling).
Section of botany.—William J. Robbins (to succeed E. W. Sinnott).
Section of anthropology and psychology.—A. V. Kidder (to succeed W. S. Hunter).

ACADEMY REPRESENTATIVE ON BOARD OF TRUSTEES OF SCIENCE SERVICE

Robert A. Millikan was nominated to succeed himself for a further term of 3 years ending with the annual meeting of Science Service in 1947. (Other National Academy of Sciences representatives on Science Service: Harlow Shapley, 1945; Warren H. Lewis, 1946.)

DUES

The recommendation of the Council of the Academy that dues for the membership in the Academy for the year ending with the annual meeting in 1945 be $10, was approved.

REPORT OF THE HOME SECRETARY

Since the last annual meeting four additional Biographical Memoirs have been sent to press and are now in proof.

Nineteen members and one foreign associate have died since the last annual meeting, as follows:

Members

Harry Gideon Wells, born July 21, 1875; elected to the Academy in 1925; died April 26, 1943.

James Ewing, born December 25, 1866; elected to the Academy in 1935; died May 16, 1943.

Henry Seely White, born May 20, 1861; elected to the Academy in 1915; died May 20, 1943.

Edward Burr Van Vleck, born June 7, 1863; elected to the Academy in 1911; died June 3, 1943.

Karl Landsteiner, born June 14, 1868; elected to the Academy in 1932; died June 26, 1943.

Frank Schlesinger, born May 11, 1871; elected to the Academy in 1916; died July 10, 1943.

William Fogg Osgood, born March 10, 1868; elected to the Academy in 1904; died July 22, 1943.

Aleš Hrdlička, born March 29, 1869; elected to the Academy in 1921; died September 5, 1943.

Frank Leverett, born March 10, 1859; elected to the Academy in 1929; died November 15, 1943.

Russell Henry Chittenden, born February 18, 1856; elected to the Academy in 1890; died December 26, 1943.

James McKeen Cattell, born May 25, 1860; elected to the Academy in 1901; died January 20, 1944.

Arthur Keith, born September 30, 1864; elected to the Academy in 1928; died February 7, 1944.

Charles Benedict Davenport, born June 1, 1866; elected to the Academy in 1912; died February 18, 1944.

Yandell Henderson, born April 23, 1873; elected to the Academy in 1923; died February 18, 1944.

Edward Oscar Ulrich, born February 1, 1857; elected to the Academy in 1917; died February 22, 1944.

Leo Hendrik Baekeland, born November 14, 1863; elected to the Academy in 1936; died February 23, 1944.

Douglas Wilson Johnson, born November 30, 1878; elected to the Academy in 1932; died February 24, 1944.

Members emeriti

Joseph Sweetman Ames, born July 3, 1863; elected to the Academy in 1909; died June 24, 1943.

William George MacCallum, born April 18, 1874; elected to the Academy in 1921; died February 3, 1944.

Foreign associate

Sir David Prain, born July 11, 1857; elected to the Academy in 1920; died March 16, 1944.

There are now 327 members, 3 members emeriti, and 38 foreign associates.

F. E. Wright, *Home Secretary.*

Report accepted.

REPORTS OF TRUST FUNDS

ALEXANDER DALLAS BACHE FUND

During the past year the board of directors of the Alexander Dallas Bache Fund of the National Academy of Sciences made the following grants:

No. 398, for $500 to Dr. Hugh M. Raup, Arnold Arboretum, Harvard University, Cambridge, for field expenses connected with a botanical survey along the new Alcan Road in northern British Columbia and southern Yukon.

No. 399, for $500 to Dr. Aleš Hrdlička, Smithsonian Institution, United States National Museum, Washington, for aid in studying the physical status of some of the tribes in Guatemala.

The bursar of the Academy reports $7,331.60 as available for grants as of the date of February 29, 1944.

W. J. V. Osterhout,
Sewell Wright,
Edwin B. Wilson, *Chairman.*

Report accepted.

JAMES CRAIG WATSON FUND

No report was received from the board of trustees of the Watson Fund.

HENRY DRAPER FUND

The committee on the Henry Draper Fund desires to report that it has given due consideration to a possible nomination for the Henry Draper medal in 1944, and wishes to recommend that no award be made at this time.

J. H. Moore, *Chairman.*

Report accepted.

J. LAWRENCE SMITH FUND

Since the report made to the annual meeting of the Academy in April 1943, no requests have been received for grants from the J. Lawrence Smith Fund of the National Academy of Sciences. Certain suggestions have been received for aid in systematic, short-time, continuous survey for meteors to derive additional data in air movements in the high atmosphere.

The bursar of the Academy advises that on March 31, 1944, the uninvested income totaled $5,595.70, invested income $3,929.47, and invested capital $10,000.

John A. Fleming, *Chairman.*

Report accepted.

BARNARD MEDAL FOR MERITORIOUS SERVICE TO SCIENCE

No report was received from the committee on the Barnard Medal.

BENJAMIN APTHORP GOULD FUND

The directors of the Benjamin Apthorp Gould Fund of the National Academy of Sciences have the honor to report to the Academy as follows:

In the period from April 1, 1943, to March 31, 1944, the following grants were made from the Gould Fund:

Grant No. 66: To Dr. S. A. Mitchell, the University of Virginia, $500 for aid in the work of the Leander McCormick Observatory on stellar parallaxes and proper motions.

Grant No. 67: To Dr. Dirk Brouwer, Yale University, $800 for support of the publication of the Astronomical Journal, a grant made in conformity with the wish expressed by the donor, Alice Bache Gould, in the fifth paragraph of the letter accompanying the deed of trust.

The status of the Gould Fund as of March 31, 1944, was as follows:

Invested capital	$18, 785. 07
Invested income	9, 747. 65
Total invested	28, 532. 72
Uninvested capital	1, 214. 95
Uninvested income	3, 594. 00
Total not invested	4, 808. 95

Total invested and not invested $33,341.67.

Walter S. Adams,
Joel Stebbins,
Forest R. Moulton, *Chairman.*

Report accepted.

WOLCOTT GIBBS FUND

No applications for grants from the Wolcott Gibbs Fund of the National Academy were received during the past year.

Gregory P. Baxter, *Chairman.*

Report accepted.

CYRUS B. COMSTOCK FUND

No report was received from the committee on the Cyrus B. Comstock Fund.

MARSH FUND

I beg to submit the report of the committee on the Marsh Fund for the year 1943, and the recommendations for grants during 1944.

I. *Report on grants made in 1943*

1. Dr. E. R. Eller, of the Carnegie Museum, Pittsburgh, received a grant of $490 to continue his work with the Scolecodonts of the Black River group (Ordovician) of Ontario, Quebec, New York, etc., where he has been collecting and publishing on microscopic forms for the last 9 years.

"The proposed problem, the Black River Group, is really a continuation of the work of last year and would complete the Mohawk series. During the summer of 1942 several scattered Black River localities were investigated with good results. By the beginning of this year's field season, about one-third of the laboratory work will be completed so that the utmost results may be accomplished in the field work."

No report has been obtained for the work carried out during the past year.

2. Dr. Lloyd R. Watson, College of Liberal Arts, Alfred University, Alfred, N. Y., received a grant of $200 for work on the development of new and improved types of honeybees. Dr. Watson has developed a technique of controlled mating of honeybees. The project is endorsed by a number of experts in entomology.

No report has been obtained for the work carried out during the past year.

II. *Applications for grants in 1944*

The committee has not received any applications for projects which fall within the scope of the Marsh Fund. It was decided by the members of the committee that the funds should be allowed to accumulate until there is an opportunity to support worthy projects.

At present the accumulated balance for this fund amounts to approximately $1,212.86.

Eliot Blackwelder.
W. W. Coblentz.
W. C. Mendenhall.
G. G. Simpson.[1]
E. B. Fred, *Chairman.*

Report accepted.

MURRAY FUND

I beg to report that the committee of the Academy, appointed to consider candidates for the Agassiz Medal (Murray Fund) this year, is not able to suggest a suitable name and recommends no election at the present time.

Reginald A. Daly, *Chairman.*

Report accepted.

MARCELLUS HARTLEY FUND

I beg to submit, herewith, a report of the committee on the Public Welfare Medal and the Marcellus Hartley Fund.

During the past few months the committee has been canvassed by mail, first for the suggestions of new names, and subsequently for nominations for the award of the medal. Only one name was submitted, and this together with the names submitted last year was transmitted to the committee. The necessary two-thirds vote was not obtained for any name on the list. In subsequent correspondence the committee agreed that it is inadvisable to submit a nomination for the Hartley Medal this year.

The bursar of the Academy advises me that the condition of the Marcellus Hartley Fund at the close of business March 31, 1944, was as follows:

Invested income	None
Uninvested income	$435. 25
Invested capital	1, 200. 00
Uninvested capital	None

J. B. Whitehead, *Chairman.*

Report accepted.

DANIEL GIRAUD ELLIOT FUND

On behalf of the Daniel Giraud Elliot committee, I beg to submit our report for 1938, 1939, 1940.

The committee unanimously recommends the award of the medal and honorarium of the Daniel Giraud Elliot Fund as follows:

For 1938: To Prof. Malcolm Robert Irwin of the University of Wisconsin, for his work Immuno-genetic Studies of Species Relationships in Columbidae. Journal of Genetics, vol. 35, No. 3, pp. 351–373, 7 figures.

For 1939: To Prof. John Howard Northrop, Rockefeller Institute, Princeton, N. J., for his work Crystalline Enzymes: the Chemistry of Pepsin, Trypsin, and Bacteriophage. Jesup Lectures, Columbia University Press.

For 1940: To Prof. William Berryman Scott of Princeton University, for his work The Mammalian Fauna of the White River Oligocene. Part IV. Artiodactyla. Transactions of the American Philosophical Society, N. S., vol. 28, pp. 363–746, plates 36–78, figures 118–136.

Thomas Barbour.
A. H. Sturtevant.
William K. Gregory, *Chairman.*

Recommendations approved and report accepted.

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[1] Dr. G. G. Simpson is on active duty with the U. S. Army and did not have an opportunity to vote on these requests.

MARY CLARK THOMPSON FUND

The committee on the Mary Clark Thompson Fund submitted two reports.

I

The committee on the Mary Clark Thompson Fund recommends as the recipient of the Mary Clark Thompson Medal and Honorarium for the year 1942, Edward Wilber Berry, professor of paleontology and provost of the Johns Hopkins University, and a member of this Academy.

Professor Berry has made outstanding contributions to knowledge of the Mesozoic and Cenozoic floras of North, Central, and South America, and the Antilles, in their relations to stratigraphy, the ecology and geographic distribution of past flores, and the evolution of the different groups of flowering plants. He is the author of more than 500 books and articles, nearly all on the subjects indicated.

The titles of a few of the more important of Professor Berry's publications are as follows:

1911. The Lower Cretaceous Floras of the World. Maryland Geol. Survey, Lower Cret., 99–151.

1911. Correlation of the Potomac Formation. Ibid., 153–172.

1911. Systematic Paletology of the Lower Cretaceous Deposits of Maryland: Plantae. Ibid., 214–508.

1914. The Upper Cretaceous and Eocene Floras of South Carolina and Georgia. U. S. Geol. Survey Prof. Paper 84, 200 pp.

1916. The Upper Cretaceous Floras of the World. Maryland Geol. Survey, Upper Cret., 183–313.

1916. The Lower Eocene Floras of Southeastern North America. U. S. Geol. Survey Prof. Paper 91, 481 pp.

1918. The Fossil Higher Plants from the Canal Zone. U. S. Nat. Mus. Bull. 103, 15–44.

1919. Upper Cretaceous Floras of the Eastern Gulf Region in Tennessee, Mississippi, Alabama, and Georgia. U. S. Geol. Survey Prof. Paper 112, 177 pp.

1924. Tree Ancestors, a Glimpse into the Past. 270 pp. Williams & Wilkins, Baltimore.

1924. Middle and Upper Eocene Floras of Southeastern North America. U. S. Geol. Survey Prof. Paper 92, 206 pp.

1924. American Tertiary Terrestrial Plants and Their Interdigitation with Marine Deposits. Geol. Soc. America Bull., vol. 35, 767–784.

1925. The Flora of the Ripley Formation. U. S. Geol. Survey Prof. Paper 136, 94 pp.

1930. Revision of the Lower Wilcox Flora of the Southeastern United States, with descriptions of new species, chiefly from Tennessee and Kentucky. U. S. Geol. Survey Prof. Paper 156, 196 pp.

1942. Mesozoic and Genozoic Plants of South America, Central America, and the Antilles. Eighth Am. Sci. Congr., vol. 4, 365–373.

II

The committee on the Mary Clark Thompson Fund recommends as the recipient of the Mary Clark Thompson Medal and Honorarium for the year 1944, William Joscelyn Arkell, a brief biographical sketch of whom is as follows:

Born June 9, 1904. Wellington College, New College, Oxford, B. A. (First Class Honours in Natural Science), 1925; Burdett-Coutts Scholar, 1925–27; B. Sc., 1927; M. A., D. Phil., 1929; D. Sc., 1934 (Oxford). Associate of the Prehistoric Survey of the University of Chicago, investigation of the geology and prehistoric archaeology of the Nile Valley in Egypt, 1926–30; lecturer in Geology, New College, Oxford, 1929–33; Fellow, 1933–40; Fellow of the Geological Society. At present connected with the Ministry of War Transport. Address: Hurstcote, Cumnor, Oxford.

Dr. Arkell's contributions to paleontology and geology have grown from intensive studies on two stratigraphic units of very different geologic age in two widely separate regions: the Jurassic system in England and the late Neogene of Egypt. His studies on British Jurassic faunas have led to two important paleontological monographs; one on the Corallian lamellibranchs (published in 10 parts, 1929–39), and one on British Corallian ammonites (8 parts to date, 1926–42). In the volume on the Jurassic system in Great Britain, he has created a classic in the field of regional geology. It represents an effective synthesis of a wealth of stratigraphic and structural detail into a dynamic history of the region of Great Britain during Jurassic times. The byproducts of these comprehensive investigations include papers on paleoecology (fossil coral reefs, tubicole worms, etc.) and on problems of local structure.

The contributions to the late Neogene history of the Nile region resulted from his participation in the University of Chicago's exploration concerning the geology and prehistoric archaeology of the Nile Valley, 1926–30. Three reports, written jointly with K. S. Sandford, have been published by the Oriental Institute of the University of Chicago. He also contributed to the report of the committee on Pliocene and Pleistocene Terraces of the International Geographical Union.

WALTER H. BUCHER.
WARREN J. MEAD.
T. WAYLAND VAUGHAN, *Chairman.*

Recommendations approved and reports accepted.

JOSEPH HENRY FUND

I. *Reports on previous grants*

86. Dr. H. T. Graham, Washington University, St. Louis, $550 grant, 1940, to defray expense of adding two channels to present cathode ray oscillograph for study of conduction of nerve impulses. Development has been interrupted on account of the war, and it is requested that the grant carry over until it can be completed.

II. *New grants*

1. Five hundred dollars to Dr. T. T. Chen, Department of Zoology, University of California, Los Angeles, Calif. To be used for technical assistance and for help in preparing illustrations in order to complete for publication a series of four papers on the cytogenetics of Paramecium.
2. Five hundred dollars to Dr. Hugh M. Raup, the Arnold Arboretum, Jamaica Plain, Mass. To be used for a continuation of research on the botany and plant geography of regions along the new Alaska Military Highway.

III. *Status of the fund*

The bursar of the Academy reports the invested capital of the fund as $44,163.50, and the uninvested capital available for grants, as of March 31, 1944, $3,921.75. It is recommended that $1,000 of this amount be added to the capital fund.

D. W. BRONK.
C. E. MCCLUNG.
W. R. MILES.
R. C. TOLMAN.
JOHN C. SLATER, *Chairman.*

Report accepted and recommendations approved.

CHARLES DOOLITTLE WALCOTT FUND

No report was received from the trustees of the Charles Doolittle Walcott Fund.

JOHN J. CARTY FUND

As chairman of the committee on the John J. Carty Fund of the National Academy of Sciences, I submit the following report:

Since the rules relating to the John J. Carty Medal permit its award not oftener than every 2 years, and since the Medal was awarded in 1943, the committee has no recommendation to make to the Academy this year.

The financial status of the fund on March 31, 1944, as reported by the bursar, was as follows:

Invested income	None
Uninvested income	$1, 838. 93
Invested capital	25, 000. 00
Uninvested capital	None

OLIVER E. BUCKLEY, *Chairman.*

Report accepted.

NATIONAL SCIENCE FUND

July 1, 1943, to June 30, 1944

During its first full year of activity (May 1941 to April 1942) the National Science Fund concentrated on contributing toward a greater general understanding of the value of fundamental science, the necessity for its support, and the National Science Fund as a unique and authoritative machinery for this financing.

By early 1942 we began to bring the National Science Fund to the attention of laymen, especially those professional groups influential in advising donors on the use of their money—trust officers, estate attorneys, lawyers who draw wills. At the same time we initiated a test program, designed to discover at once, by subjecting the fund to scrutiny by prospective donors, what could be done to make the plan of operation more efficient and attractive to future benefactors of science. In beginning this wider program Directors Conklin, Jewett, Robbins, and Shapley of the National Science Fund, participated in a series of four Nationwide radio broadcasts dealing with the general subject of scientific research, its applications to human living, and its financial support. The test program carried out was not designed to secure large sums of money, but to determine whether the machinery of the fund appealed to donors and if not how it could be improved. In our test program a number of approaches were made to a group of foundations and family trusts that have never been active in support of science. A small number of individuals also were approached. Through some of these approaches we learned how to present the fund more effectively, and we have been able to arrange experimental support of certain test projects which we believe will effectively demonstrate the value of our plans and eventually lead to larger and more substantial funds from new sources for the support of science.

Concurrently, we gathered and prepared basic material to be used in making National Science Fund and its objectives known. We made two surveys with the help of Academy members and other leading scientists to determine critical areas of scientific research where philanthropic investments might wisely be made.

Our directors have believed that the fund will serve the national need if: (1) it increases funds available for support of scientific research; (2) it becomes a clearinghouse for ideas for improving the timeliness of support of fundamental research and concentration upon backward and problem areas; (3) it makes itself generally known to the public as a competent, disinterested adviser with respect to gifts and bequests to science.

What has already been done in these three respects may be summarized as follows:

I. Increasing funds for scientific research:

(1) Made available to scientific investigators by putting them in touch with sources of funds: Approximately $17,825;

(2) Interest solicited of 17 individuals who may contribute substantially to science;

(3) Bequests provided to the National Science Fund in the wills of three individuals;

(4) Interest of one major foundation never active in the field of science and with substantial funds to devote to its development over a period of years directed into scientific channels with indications that the National Science Fund machinery may be used either to administer an allocation of funds for scientific work or as an advisory body to the trustees of the foundation;

(5) Direct contributions received for the operating expenses of the fund as a result of an appeal letter directed to a selected group of 1,100 individuals throughout the country, in part as a means of bringing the fund to their attention, $962.

II. Clearing-house services performed:

(1) Two surveys made with help of leading scientists to determine critical areas of scientific research most in need of support;

(2) Over 30 different requests for assistance to scientific research reviewed. Of those requests considered worthy after investigation definite aid was secured in 6 cases; others are in process;

(3) Conduct of negotiations for anonymous donor making $1,500 grant (matched by an equal amount by the institution) for research in chemistry and the administration of the grant;

(4) Study of status of applied mathematics in this country, followed by request for National Research Council appointment of committee to study the whole question and recommend broad national policy;

(5) Survey of operation of cyclotrons in this country during the war period and adequacy of supply of artificially radioactive substances for use in research;

(6) Administration of the Charles L. Mayer awards of two annual prizes of $2,000 each for outstanding contributions to our knowledge of factors affecting the growth of animal cells (award for 1942 given to Dr. Charles L. Huggins of the University of Chicago for his work on endocrine control of prostatic cancer, and for 1943 to Dr. Alexander Lipschutz of the Department of Experimental Medicine, Chilean National Health Service, Santiago, Chile, for his work on the control of one type of tumor through hormonal action);

(7) Administration of the Charles L. Mayer Nature of Light Awards, in the amount of $4,000, for fundamental work on the nature of light;

(8) Secured financing of $1,000 for preparation of an edited version of moving-picture films of neurological conditions of significance in the war and the publication of an atlas to accompany them;

(9) Secured financing of $13,000 for preparation of a taxonomic manual of the Penicillia, to be carried out as a restudy and amplification of Dr. Charles Thom's classification of the Penicillia, published in 1930.

III. Making the National Science Fund known:

(1) Conducted a program of informing scientists throughout the country and securing the cooperation of the organizations of scientists themselves;

(2) Planning and securing financing for the first detailed documented study of the relation of fundamental research to applications in daily living to be carried on through a grant from the Milton Fund at Harvard;

(3) Series of four national radio broadcasts over CBS in October and November 1941;

(4) Experimental approaches to trust officers carried on in several leading cities;

(5) Articles about the fund published in the leading professional journals read by trust officers and estate attorneys (see Mobilization of Science, article by Dr. Frank B. Jewett in Trusts and Estates, November 1942 issue; and The Trust Bulletin, American Bankers Association, June 1942 issue; article on the fund in The American Scholar, summer 1942 issue, titled "Science and the Future," recently published in the anthology, Treasury of Science; extended description of the fund in Bruce Bliven's book, The Men Who Make the Future);

(6) More than 6,000 short leaflets, Philanthropy in Science, describing the fund, prepared and distributed;

(7) Direct personal letter to a selected group of 1,100 individuals enclosing a folder showing actual specimens of vitamin B_1, vitamin B_2, niacin, and sulfanilamide, entitled "Investment in Science Yields Dividends in Better Health and Living."

The fund's operating expenses have been met from two grants received from the Carnegie Corp., totaling $25,000 plus contributions received for general operating expenses amounting to $992. Of the total amount of $25,992, a balance of $339.99 remained on June 30, 1944. Operations of the original committee on a National Science Fund and of the fund itself have been conducted during a period of five full years within this budget. It is worth noting in passing that the expenditure for operating the fund since its formal establishment in April 1941, was approximately $18,000, and during the period a total of $30,000 has already been made available for support of science through the fund from other sources.

The future of the National Science Fund

That the National Science Fund can become an effective agency as originally envisaged is indicated by the bequests which are in prospect, and by the expressed interest of several potential donors.

However, no considerable funds have as yet been entrusted to us for administration. There are three major reasons for this situation. The war has slowed the development of the program of the fund, calling its executive secretary and many of its directors into emergency activities and directing to other purposes money which might have come to the National Science Fund. Furthermore, 3 years are probably too short to establish an activity of this sort on a firm foundation even without the complications of wartime conditions. Time is needed for the National Science Fund to become known and its services to be appreciated. Finally, the board of directors of the National Science Fund has not undertaken drives for funds but has considered its main business to be the establishment of a mechanism which would advise donors and direct funds into scientifically profitable channels.

Some definite results have been accomplished and there is promise for the future. For the duration of the war the offices of the National Science Fund were moved at the end of April 1944, to the National Academy of Sciences in Washington, D. C., where the activities of the fund are being continued.

William J. Robbins,
Chairman, Board of Directors.

Report accepted.

REPORT ON THE PROCEEDINGS

It is customary at this time to make a report on the Proceedings of the National Academy of Sciences. With the close of the calendar year 1943 we completed the twenty-ninth volume of the Proceedings. There were 81 contributions making 408 pages. The average length of the contributions was 5 pages. The distribution was as follows:

Mathematics	35
Chemistry	3
Botany	8
Zoology and anatomy	4
Genetics	20
Physiology and biochemistry	1
Pathology and bacteriology	10

Of the 81 contributions 32 were by members of the Academy and 1 was by a National Research fellow.

Edwin B. Wilson, *Managing Editor.*

Report accepted.

REPORT ON BUILDINGS AND GROUNDS

There is little change in the Academy building since the meeting last year when it was reported that all available space from the first floor to the third had been converted into offices and workrooms for advisory committees carrying on war work.

Under the library and reading room there is a large room (known as the stack room) in which the books accumulated before the Academy moved into the building, and those later received, had been stored. They were partially classified but had not been completely arranged because of the lack of funds for adequate shelving and help. There was also storage of chairs, screens, and other material used during meetings, and of some of the exhibits.

Arrangements were made to condense all this material in the north half of the room, and to use the southern half for offices. This was done, and partitions were erected to provide two conference rooms and three offices. As the walls and floors were in an unfinished condition, monks' cloth was draped over the walls, and the floor was covered with asphalt tiles.

The grounds suffered from the continued drought last summer. It was estimated that the soil and earth beneath were dry some 6 feet down for lack of rain. It was not possible to help this condition because of restricted war conservation of water. The Academy lost three of the large cedars and a number of hemlocks through the lack of sufficient moisture.

After 20 years of constant use the building itself is intact, and the few leaks that appeared in the early days of occupancy have disappeared. There has been no settling of any of the walls, although the construction was on filled ground. This is due to the untiring supervision and foresight of Gano Dunn, a member of the Academy, and chairman of the building committee.

The National Academy of Sciences-National Research Council Building, designed with its beautiful exterior and interior, will stand in the future to encourage scientific effort in this country. This was the hope of George Ellery Hale, member of the Academy who conceived the idea, and gave of his time and energy to secure the funds for a monumental structure to symbolize research in science in the United States of America.

Paul Brockett,
Custodian, Buildings and Grounds.

Report accepted.

GOVERNMENT PROJECTS

Reports on scientific advisory work being done by committees of the National Academy of Sciences and National Research Council at the request of the Government are not included in this Annual Report. Reports on such projects are made directly to the agency concerned, and the question of whether or not they shall be published, and their distribution if published, is entirely in the hands of that department or agency. No releases are made by the Academy.

SCIENCE FROM THE MILITARY STANDPOINT

Speakers from the Army and Navy reported orally on science from the military standpoint, as follows:

Vice Admiral Ross T. McIntire, Surgeon General, United States Navy, Chief, Bureau of Medicine and Surgery; Major Medical Problems of the Navy.

Rear Admiral J. A. Furer, Coordinator of Research and Development, United States Navy; Research in the Navy.

Rear Admiral A. H. Van Keuren, Director, Naval Research Laboratory; Work of the Naval Research Laboratory.

Brig. Gen. H. M. McClelland, chief air communications officer, Army Air Forces; Major Problems of the Army Air Forces.

Col. Georges F. Doriot, Quartermaster's General Corps; Major Problems of the Quartermaster's Corps in Which Civilian Science Can Be of Assistance, and of the Mechanism Which Appears Most Effective.

Maj. Gen. James A. Code, Jr., Assistant Chief, Signal Corps; Major Problems of the Signal Corps.

Maj. Gen. Norman T. Kirk, The Surgeon General, War Department; Army's Major Medical Problems.

Maj. General Gladeon M. Barnes, Chief Technical Director, Ordnance Department of the United States Army; Problems of the Ordnance Department.

ELECTIONS

The elections at the annual meeting resulted as follows:

Treasurer: Jerome C. Hunsaker, reelected for a further term of 4 years, ending June 30, 1948.

Two members of the Council of the Academy, for terms of 3 years, ending June 30, 1947: Ernest W. Goodpasture, Irving Langmuir.

New foreign associates: Edward Battersby Bailey, Geological Survey, Exhibition Road, SW. 7, London, England; Leopold Ruzicka, Department of Organic Chemistry, Institute of Technology, Zurich, Switzerland.

New members: Thomas Addis, Stanford University Medical School, San Francisco, Calif.; Charles Armstrong, United States National Institute of Health, Washington, D. C.; Philip Bard, Johns Hopkins University School of Medicine, Baltimore, Md.; George Wells Beadle, Stanford University, Stanford University, Calif.; Hans A. Bethe, Cornell University, Ithaca, N. Y.; Edward U. Condon, Westinghouse Research Laboratory, East Pittsburgh, Pa.; George O. Curme, Jr., Carbide & Carbon Chemical Corp., New York, N. Y.; Hugh L. Dryden, National Bureau of Standards, Washington, D. C.; Carl Owen Dunbar, Yale University, New Haven, Conn.; Vincent du Vigneaud, Cornell University Medical College, New York, N. Y.; James Franck, University of Chicago, Chicago, Ill.; Reynold C. Fuson, University of Illinois, Urbana, Ill.; Edwin Bret Hart, University of Wisconsin, Madison, Wis.; Selig Hecht, Columbia University, New York, N. Y.; Alfred H. Joy, Mount Wilson Observatory, Pasadena, Calif.; Esper Signius Larsen, Jr., Harvard University, Cambridge, Mass.; James B. Macelwane, S. J., St. Louis University, St. Louis, Mo.; Leonard A. Maynard, Cornell University, Ithaca, N. Y.; Barbara McClintock, department of genetics, Carnegie Institution of Washington, Cold Spring Harbor, Long Island, N. Y.; C. R. Moore, University of Chicago, Chicago, Ill.; Alfred S. Romer, Harvard University, Cambridge, Mass.; Louis B. Slichter, Massachusetts Institute of Technology, Cambridge, Mass.; Lee I. Smith, University of Minnesota, Minneapolis, Minn.; Don M. Yost, California Institute of Technology, Pasadena, Calif.; Oscar Zariski, Johns Hopkins University, Baltimore, Md.

REPORT OF THE NATIONAL RESEARCH COUNCIL

For the year July 1, 1943, to June 30, 1944

(Prepared in the office of the Chairman of the Council with the assistance of the chairmen of divisions of the Council)

The following report is presented to the National Academy of Sciences by the National Research Council upon activities of the Council during the fiscal year July 1, 1943, to June 30, 1944.

INTRODUCTION

There has been no material change in the types of activity engaged in by the National Research Council during the year. Transfer of certain projects to the Office of Scientific Research and Development ✓ and conclusion of others have been more than offset by the intensified activity in projects which are continuing and by the inauguration of new ones.

Some of these have required a considerable amount of office space, so that, beginning several years ago, all of the available room in the building has been gradually taken over and remodeled for office purposes—first the exhibition halls, next the galleries in the auditorium, then the main floor of the auditorium and the library alcoves, and finally about half of the stackroom in the basement under the library. Some of this space has been allotted to Government organizations such as the Committee on Medical Research, one of the divisions of the National Defense Research Committee, and the Army. No further expansion is possible and consequently any additional offices will have to be accommodated by concentration of the present ones.

GENERAL ACTIVITIES

Fellowships.—As in the preceding year, the number of applications for fellowships for 1944–45 was much smaller than in the years before the war. In the medical sciences, including the fields of general medicine, the filtrable viruses and orthopedic surgery, and the Welch fellowships in internal medicine, only 13 applications were received, 2 of which were for reappointment. Of these, two reappointments were granted for research in the filtrable viruses and four new fellows were appointed, two in general medicine and two in orthopedic surgery.

In the natural sciences for the same period 14 applications were considered by the board and 8 fellowships were awarded, 3 of which were later declined.

Conference grants.—The National Research Council has continued, through appropriations made by the Rockefeller Foundation, to sponsor special conferences and committee meetings called for the consideration of important problems and the organization of special research activities. During the year a total of $6,310.02 was spent for these meetings as follows:

GENERAL

Joint committee on Latin-American studies; contribution toward the expense of meetings.

Committee on American bibliography of scientific and technical books, Washington, D. C., March 29, 1944.

FOREIGN RELATIONS

Conference on the preparation of a Pacific science handbook, Washington, D. C., July 28, 1943.

ENGINEERING AND INDUSTRIAL RESEARCH

Conference on fatigue in industry, New York City, February 9, 1944.

PHYSICAL SCIENCES

Conference on postwar physics, Philadelphia, Pa., May 19-20, 1944.

GEOLOGY AND GEOGRAPHY

Committee on common problems of genetics and paleontology, group meetings, Berkeley, Calif., June 14-16, 1943; and New York City, July 24-25, 1943.

BIOLOGY AND AGRICULTURE

Committee on animal health, Chicago, Ill., August 24, 1943.

Committee on animal nutrition, St. Louis, Mo., August 25-26, 1943.

Committee on crop protection, Washington, D. C., August 12-13, 1943.

Committee on biological processes of ageing, Washington, D. C., November 21, 1943.

Committee on animal nutrition, Chicago, Ill., November 29, 1943.

Committee on training research workers in agriculture, Chicago, Ill., October 25, 1943.

Committee on crop protection, Columbus, Ohio, December 7, 1943.

Conference on agriculture, Washington, D. C., March 8, 1944.

Committee on food resources of coastal waters, Washington, D. C., January 25, 1944.

ANTHROPOLOGY AND PSYCHOLOGY

Emergency committee in psychology, New York City, August 6-7 and October 22-23, 1943, and February 18-19 and June 30-July 1, 1944.

Subcommittee on survey and planning, Vineland, N. J., November 5, 1943.

Office of psychological personnel, travel.

Representatives on special occasions.—In response to invitations the National Research Council has been represented during the year at academic ceremonies as follows:

Inauguration of Clark George Kuebler as president of Ripon College, Ripon, Wis., December 7, 1943: Leon J. Cole, professor of genetics, University of Wisconsin.

Inauguration of the Very Reverend Vincent J. Flynn as president of the College of St. Thomas, St. Paul, Minn., April 27, 1944: D. E. Minnich, professor of zoology, University of Minnesota.

Cooperation with National Bureau of Standards.—During the year the National Research Council has continued to serve as fiscal agent for the National Bureau of Standards in the administration of funds contributed to the Bureau by industry and other nongovernmental agencies for the support of investigations at the Bureau. Projects supported in this way during the past year are as follows: Acoustic properties of materials, thermal properties of liquids, fire resistance of materials, thermal investigations, ignition research, construction of high-precision standards, and investigations on stainless steel sheets. The total amount expended last year by the Council on these projects was $10,979.58.

Bibliographic service to Central and South America.—Under a grant-in-aid from the Coordinator of Inter-American Affairs the Council has continued to assist in the location of published material on any scientific subject for free distribution upon the request of scientists in other American Republics. The work of securing the necessary information and putting it into microfilm form for distribution has been undertaken by the library of the United States Department of Agriculture under the direct supervision of the librarian, Mr. Ralph Shaw, and following his entry into military service by Miss Mildred Benton. In addition to meeting individual requests, the committee has also distributed 100 subscriptions to the Bibliography of Agriculture and 100 Handviewers for use by persons who do not have access to the conventional reading devices.

Inter-American Engineering Cooperation.—The Advisory Committee on Engineering Publications (in cooperation with the Inter-American Development Commission) was organized to carry out plans instituted by the Joint Committee on Inter-American Engineering Cooperation of the four leading engineering societies. Its purpose is to stimulate the exchange of engineering papers and other information by the engineers of this country and the other American Republics. As an aid to this exchange copies of the latest volume of the Engineering Index were sent to all of the principal engineering groups in South and Central America. As a result there has been considerable material exchanged, and through the work of the committee the project of distribution of microfilm, which is made possible through the committee on bibliographic service to Central and South America, has been considerably stimulated.

Advisory Committee on Scientific Publications.—The Advisory Committee on Scientific Publications reports remarkable cooperation between editors and authors in withholding publication of articles which would be of value to the enemy. Referee committees in the various fields are reviewing again articles previously withheld to determine whether they may be published. A number of these articles have been released for publication.

The chief occupation of the committee at present is in the field of medicine. Reference committees in the various fields, with the number of referees indicated, are as follows: Aeronautics, 2; applied mechanics, 7; mathematics, 1; medicine, 10; metallurgy, 1; physics and chemistry, 9; synthetic rubber, 1.

The relation of the committee to the Office of Censorship is described in the annual report for 1942–43 (p. 23).

Applied mathematical statistics.—The subcommittee on economics of the committee on applied mathematical statistics organized a conference on the use of mathematical statistics in connection with business organizations, which was held in Atlantic City, N. J., January 7–9, 1944. The conference was attended by representatives of 22 industrial firms from Chicago eastward and representatives from the War and Navy Departments, the Bureau of the Census, the Bureau of Foreign and Domestic Commerce, and the Social Security Board.

included in a bibliography of current American scientific and technical books for distribution principally in countries of Central and South America. The original proposal provided that the titles to be included should be selected by a committee of the Council, the volume to be printed by the publishers and distributed by them with the cooperation of the Department of State. The Council agreed to undertake the preparation of the list, the cost to be met through a grant of $10,000 from the publishers. A committee was appointed to direct the project under the chairmanship of Dr. Harrison W. Craver, librarian of the Engineering Societies Library in New York, with Mr. R. R. Hawkins of the New York Public Library as editor.

In June 1943 the Coordinator of Inter-American Affairs contributed to the Council a grant-in-aid in the amount of $25,000 toward the cost of printing. Thus, the Council's responsibility in the project has been extended and will continue until the bibliography is off the press. Publishers of scientific and technical books have responded enthusiastically to requests for lists from which titles may be selected, and the work of selection is going forward rapidly under Mr. Hawkins' editorship.

JOINT ACTIVITIES

Conference board of associated research councils.—With the discontinuance on June 30, 1943, of the National Resources Planning Board, it was felt that the fruitful relationships of the three Councils which had formerly existed through their representation in the Science Committee of the Board should be continued in some form. After a number of informal conferences between the heads of the American Council of Learned Societies, the Social Science Research Council, and the National Research Council, a form of organization was agreed upon, and a proposal for the establishment of a conference board of associated research councils was presented to the administrative committee of the National Research Council on February 5, 1944. The proposal was approved and the Chairman and Executive Secretary were appointed to represent the Research Council in the Board. The Board held its first meeting on March 6, 1944, and its second on May 9. The already existing joint undertakings, namely, the Ethnogeographic Board and the joint committee on Latin-American studies, were placed at once under the immediate direction of the Board, as was also a proposal of the committee on Pacific investigations for the preparation of a Pacific science handbook. A number of other problems of common interest have been discussed, but no further joint projects have as yet been undertaken by the Board.

Ethnogeographic Board.—The Ethnogeographic Board has been occupied in meeting urgent requests from the Army, the Navy, and other war agencies for regional, linguistic, survival, and similar materials, and has given wide distribution to 12 personnel lists prepared by the Council committees on the anthropology of Oceania and on African anthropology. Six mimeographed reports (Strategic Bulletins of Oceania), including gazetteer, meteorological, airplane-landing, and survival materials, were prepared for the Board by the staff of the Cross-Cultural Survey of Yale University and were distributed by the Board to the Army, the Navy, and other war agencies.

A request from the Navy Department led to the preparation of an official Navy survival booklet for general distribution to all fleet

A number of special services to wartime science have been carried out by the Office. It took an active part in organizing advisory committees to assist the Army and Navy in the preparation of curricula for the wartime training of service personnel in American universities and colleges. Problems created by these courses arose in a number of Federal agencies and the Office was frequently called on for special assistance by such agencies as the United States Office of Education, the War Production Board, and the armed services themselves. It performed an important function for the Office of Scientific Research and Development in June of 1944, when the deferments of all scientists under 26 years of age were threatened, by carrying out a survey of the problem and proposing a course of action.

As a special service to members of scientific groups, the Office prepares from time to time bulletins informing them of trends and developments in Washington which affect scientists and their work.

Survey of schools of osteopathy.—In the autumn of 1942 the Council was requested by the Secretary of Labor on behalf of the Children's Bureau to make a survey of the six schools of osteopathy in the United States and an equal number of medical schools for comparison. This request was acceded to later, and ultimately a covering contract was signed, but owing to various complications it was not possible to begin the study until the autumn of 1943, and then only on a limited scale. At this time a request was received from the Director of Public Health of the State of California for a survey of the Los Angeles College of Osteopathic Physicians and Surgeons. With the approval of the Secretary of Labor it was possible to proceed with this survey under the terms of the contract with the Department of Labor. The School of Medicine of the University of Southern California was chosen for comparison and the deans and faculties of both institutions willingly cooperated in the survey.

The survey was in charge of Dr. C. V. Taylor, professor of biology and dean of the School of Biological Sciences, Stanford University, who had the assistance of representatives of the basic sciences, clinical medicine, and osteopathy. Their findings were submitted to a committee of review, composed of men unaffiliated either with osteopathy or medicine. On the basis of the findings and after free discussion with groups of consultants representing medicine and osteopathy, respectively, a final report was agreed to unanimously by the committee of review and transmitted to the Secretary of Labor and the Director of Public Health of California.

Publication of Chinese manuscripts.—In the autumn of 1943 the Department of State requested the National Research Council to assist in placing for publication in scientific journals of the United States manuscripts by Chinese scholars transmitted to the Department through a special arrangement with Dr. Joseph Needham of the British Scientific Mission in Chungking. More than 50 of these papers have been submitted by the chairman of the Council to editors of scientific and technical journals, and a large proportion have been found to be of high quality and have been accepted for publication.

Bibliography of American scientific and technical books.—In November 1943, the Chief of the Division of Cultural Relations of the Department of State suggested that the National Research Council cooperate with a group of publishers in the selection of titles to be number of governmental agencies and private institutions demonstrate possibilities for larger service. Looking forward to increased activity in such cooperative undertakings and to the publication of results of research in the field for distribution to collaborators in this and foreign countries, the Union has obtained a grant of $15,000 from the Rockefeller Foundation and additional funds in like amount contributed by its individual members for the employment of a full-time secretary and for other purposes of the Union.

As soon as world conditions permit, the International Union of Geodesy and Geophysics, of which the American Geophysical Union acts as the American section, plans to hold a general assembly in Bergen, Norway.

LIBRARY

The selection of books for purchase in the library has followed the usual policy of furnishing standard reference works in science and technology for ready use by the Council personnel. Approximately 75 of these books were added during this year. The library has borrowed volumes from other libraries in the city to a greater extent than usual. This has been facilitated by the use of the interdepartmental mail service. Circulation of the 128 periodicals regularly received has increased among the divisions and committees. Several new periodicals and a number of general textbooks on technological subjects have been purchased on request to meet the needs of the various committees now housed in the building.

Research supported by industry.—Research Supported by Industry Through Scholarships, Fellowships, and Grants was revised in October 1943. During the 15 years in which this compilation has appeared at irregular invervals, research of this type has steadily increased. Two hundred and one companies in the present list report a total of 956 fellowships, scholarships, or grants for research. There was a delay in publication of several months owing to the paper shortage, but the revision appeared in the April 1944 issue of the Journal of Chemical Education, and reprints were made available for distribution to the supporting companies and to interested persons.

Publications of NRC.—Publications of the National Research Council was revised and issued in October 1943. This pamphlet lists the Bulletin series, the Reprint and Circular series, a supplementary list of publications sponsored by the Council or its committees but commercially published, and contains an index by key word to the titles.

NAS-NRC leaflet.—National Academy of Sciences-National Research Council—a leaflet of seven pages, dated July 1, 1943, was prepared in cooperation with the office of the executive secretary and was published in the fall of 1943. The purpose of this leaflet is to give briefly a few facts about the Council, its organization, purpose, support, membership, and building.

PUBLICATIONS

The sale of all publications of the Council for the fiscal year 1943–44 amounted to $4,353.34. Prices of publications are set to cover only the cost of printing and of handling. The following publications have appeared during the year:

BULLETINS

No. 108. The Problem of Changing Food Habits. Report of the Committee on Food Habits, 1941–43. October 1943. 177 pages. Free. Edition: 1,500. Second printing, 2,500.

No. 109. Inadequate Diets and Nutritional Deficiencies in the United States: Their Prevalence and Their Significance. January 1944. 56 pages. Fifty cents. Edition: 5,000. Second printing, 20,000.

REPRINT AND CIRCULAR SERIES

No. 118. A Report on Margarine. Report of the Food and Nutrition Board. Prepared by the Committee on Fats. August 1943. 20 pages. Free. Edition: 6,000.

No. 119. Recommendations for Prevention of Bloat in Cattle and Sheep. First report of the Committee on Animal Health. November 1943. 3 pages. $0.25. Edition: 400.

No. 120. Recommendations for Increasing Milk Production Through Proper Milking and Mastitis Control. Second report of the Committee on Animal Health. October 1943. 6 pages. $0.25. Edition: 1,000.

PUBLICATIONS OF THE HIGHWAY RESEARCH BOARD

Highway Research Abstracts (10 monthly issues of 10 pages each during the year; mimeographed.) Edition: 1,700 copies.

Proceedings of the Highway Research Board, Twenty-second Annual Meeting, St. Louis, Mo., December 1–4, 1942. July 1943. 494 pages.

War Time Road Problem Series. Nos. 6, 7, 8. July, October, December 1943. Edition: 4,000 copies on first printing; 4,000 second printing, Nos. 6 and 7.

PUBLICATIONS OF THE AMERICAN GEOPHYSICAL UNION

Transactions of the American Geophysical Union. Part I: Twenty-fourth Annual Meeting, April 23, 24, and 25, 1943, Washington, D. C. Reports and Papers; General Assemblies and Sections of Geodesy, Seismology, Meteorology, Terrestrial Magnetism and Electricity, Oceanography, Volcanology, and Tectonophysics. October 1943. Pages 1–330. Part II: Twenty-fourth Annual Meeting, April 23 and 24, 1943, Washington, D. C. Reports and papers, Section of Hydrology, January 1944. Pages 331–783. Part III: Reports and Papers, Joint Regional Meeting, Section of Hydrology, Western Snow Conference, Corvallis, Oreg., June 16, 1943. November 1943. Pages 1–99.

MISCELLANEOUS PUBLICATIONS

Organization and Members, 1943–44. December 1943. 90 pages. Edition: 2,600.

Annual Report, National Research Council, 1942–43. September 1944. 87 pages. Edition: 3,000.

Publications of the National Research Council. October 1943. 15 pages. Edition: 1,200.

PERIODICALS

Mathematical Tables and Aids to Computation. Quarterly. Edited on behalf of the Committee on Mathematical Tables and Aids to Computation, Division of Physical Sciences. Subscription price, $3. Volume I, Nos. 3, 4, 5, and 6, July, October 1943; January, April 1944.

SUMMARY OF FINANCIAL OPERATIONS

General.—The total expenditures of the National Research Council during the fiscal year ended June 30, 1944, for current purposes amounted to $1,427,737.65, compared with a total of $1,272,054.08 in the previous year. This represents an increase of 12.2 percent in the total expenditures. The totals for both years are exclusive of purchases of securities, transfers of funds within the Council's accounts, repayments of advances to the National Academy of Sciences, and refunds which were in the nature of expenditure reductions.

An analysis of the total current expenditures by the major types of activities supported provides a measure of interpretation and an indication of the magnitude of operations in the various categories. The expenditures of the Research Council may be classified for this purpose as follows: (1) Administration and general, (2) specific projects, including those undertaken for and supported by Government departments and agencies, and those whose financial support is provided by private sources, (3) fellowships administered by boards of the Research Council and supported by private philanthropy, and (4) agency funds which are handled by the Council as the fiscal agent of the various controlling bodies.

The report of the treasurer (p. 63) contains detailed statements of receipts and disbursements of the National Research Council.

Classification of expenditures by purposes

Purpose	1942–43		1943–44	
	Amount	Percent	Amount	Percent
Administration and general	$137, 382. 89	10. 8	$136, 867. 21	9. 6
Specific projects:				
Government financed	839, 348. 30	66. 0	995, 589. 02	69. 7
Privately financed	211, 290. 32	16. 6	226, 707. 35	15. 9
Fellowships	63, 626. 69	5. 0	45, 878. 22	3. 2
Agency funds	20, 405. 88	1. 6	22, 695. 85	1. 6
Total	1, 272, 054. 08	100. 0	1, 427, 737. 65	100. 0

Expenditures for administration and general.—As in the previous fiscal year the funds for the support of the administrative and general functions of the Research Council were provided from the following sources: (1) income from endowment funds, (2) allotments from grants by the Rockefeller Foundation and the Carnegie Corporation, and (3) Government funds in reimbursement for administrative and overhead costs incurred in connection with carrying out research projects for governmental agencies. The situation with respect to the recovery of overhead costs has been stabilized with the Government assuming a portion of the administrative expenses attributable to research projects undertaken at the request of departments and agencies of the Government. Fortunately, this fact has reduced the Council's dependence upon grants from private philanthropy for the support of the administrative budget and has permitted the utilization of certain of those grants in other special and timely activities.

In 1943–44 the total expenditures for administration and general were slightly less than in the previous fiscal year. This reduction was made in spite of greater expenditures on account of specific projects and large purchases of equipment for the modernization of the duplicating department and the accounting office.

Government-financed projects.—The expenditures of the Research Council during 1943–44 in connection with research projects undertaken at the request of the Government increased by $156,240.72 over the previous year. Expenditures for this purpose represented 69.7

percent of the grand total expenditures for all purposes and 77.1 percent of all costs exclusive of administrative. The expenditures for Government-financed projects were made in accordance with 24 formal agreements with 12 departments and agencies.

Privately financed projects.—Even though there were significant increases in the number of projects and in the expenditures for Government-sponsored work, the Research Council was also able to register an increase in the expenditures for privately financed projects. Private philanthropy has most generously and wisely extended financial support in areas (1) where the immediate and primary objectives were nonmilitary in character, and (2) where the work contributed directly and substantially to the war effort but for the support of which no Government funds were available, and (3) where non-Government projects, in a sense, supplemented Government programs with the view of obtaining larger and more lasting benefits to the general population than were possible under the conditions inherent in the emergency conduct of war research. There are definite indications that private philanthropy would be able and willing to assume large financial responsibilities in the postwar years for rehabilitation of scientific research on a peacetime basis.

Fellowships.—Expenditures on account of fellowships continued their downward trend, and were $45,878.22 in 1943–44, as compared with $63,626.69 in the previous year. The details were as follows:

In the medical sciences, including those relating to the filtrable viruses and orthopedic surgery	$26, 485. 60
In the natural sciences	19, 345. 76
In protein chemistry	46. 86
Total	45, 878. 22

Agency funds.—During the fiscal year under review the Research Council disbursed funds as fiscal agent as follows:

Washington Biophysical Institute	$800. 00
Society for Research in Child Development	3, 454. 74
Annual Tables of Constants and Numerical Data	7, 485. 87
National Bureau of Standards	10, 955. 24
Total	22, 695. 85

The Research Council has no responsibility for the development or conduct of the technical programs of the agencies indicated. As fiscal agent the Council undertakes only to receive and disburse the funds in accordance with the wishes of the controlling bodies.

OFFICERS OF THE NATIONAL RESEARCH COUNCIL, 1944–45

GENERAL OFFICERS

Chairman: Ross G. Harrison, Sterling professor of biology, emeritus, Yale University, New Haven, Conn.

Treasurer: Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the department of aeronautical engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary: William H. Kenerson, professor of mechanical engineering, emeritus, Brown University; National Research Council, 2101 Constitution Avenue, Washington 25, D. C.

Business manager: George D. Meid, National Research Council.

Assistant business managers: C. L. Wade, B. L. Kropp, National Research Council.

OFFICERS OF DIVISIONS

Foreign relations: Chairman, W. B. Cannon; George Higginson professor of physiology, emeritus, Harvard Medical School; vice chairman, Harlow Shapley, professor of astronomy and director of the Harvard College Observatory, Harvard University, Cambridge, Mass.; secretary, William H. Kenerson.

Physical sciences: Chairman, Luther P. Eisenhart, professor of mathematics and dean of the graduate school, Princeton University, Princeton, N. J.; vice chairman, Henry A. Barton, director, American Institute of Physics, 57 East Fifty-fifth Street, New York, N. Y.

Engineering and industrial research: Chairman, W. F. Durand, professor of mechanical engineering, emertus, Stanford University, Stanford University, Calif.; vice chairman, Howard A. Poillon, president, Research Corp., 405 Lexington Avenue, New York, N. Y.; executive secretary, W. H. Kenerson.

Chemistry and chemical technology: Chairman, W. Mansfield Clark, professor of physiological chemistry, school of medicine, Johns Hopkins University, Baltimore, Md.; vice chairman, Harris M. Chadwell, head of the department of chemistry and chemical engineering, Tufts College, Medford, Mass.

Geology and geography: Chairman, William W. Rubey, principal geologist, United States Geological Survey, Washington, D. C.; vice chairman, Otto E. Guthe, principal administrative assistant, Office of the Geographer, Department of State, Washington, D. C.

Medical sciences: Chairman, Lewis H. Weed, professor of anatomy and director of the school of medicine, Johns Hopkins University, Baltimore, Md.; vice chairman, George B. Darling, National Research Council.

Biology and agriculture: Chairman, Robert F. Griggs, executive officer, department of botany, and chairman, division of natural sciences, George Washington University, Washington, D. C.; vice chairman, C. F. Korstian, dean of the School of Forestry, Duke University, Durham, N. C.

Anthropology and psychology: Chairman, Leonard Carmichael, president, Tufts College, Medford, Mass.; vice chairman, Ralph Linton, professor of anthropology, Columbia University, New York, N. Y.

REPORTS OF DIVISIONS

DIVISION OF FOREIGN RELATIONS

W. B. Cannon, chairman; Harlow Shapley, vice chairman

During the year 1943–44, as in the previous year, the war has interfered with nonmilitary international scientific efforts. Even among the Allied Nations and between them and neutral nations, the compulsions of war have prevented cooperation. In the circumstances the best that can be done is to prepare for the future.

Restoration of cultural activities.—Dr. W. G. Leland, member at large of the Division and chairman of the Advisory Committee on Cultural Relations of the Department of State, has reported certain important steps taken toward postwar restoration of international cultural activities. Among these is the restocking of essential educational facilities such as libraries, and the training of carefully selected foreign students in American educational institutions. The cooperative enterprises which have been undertaken with Latin-American countries have developed into an International Center for Intellectual Cooperation located at Habana. For extension of the cultural relations which have proved useful in bringing about mutual understanding between the United States and nations south of us, as well as with China, there is proposed a development of similar programs with other countries of the world.

Restoration of amenities.—An important feature of postwar planning is consideration of the possibilities and difficulties of restoring amenities between scientists of the Allied Nations and those of the Axis Powers. It is recognized that in certain disciplines such as astronomy and archeology they may be more readily reestablished than in others, such as history and sociology where emotional factors are involved. This would imply easier return to normal relations in scientific cooperation than in other ranges of interest. In any case the process of restoring friendly intercourse is likely to be slow. An exchange of published papers and letters is suggested as a preliminary step to actual meetings and the holding of congresses.

International unions in wartime.—In order to learn to what degree international unions have found it possible to continue their activities during the war, and also to learn about future plans for engaging in international collaboration and holding meetings, a questionnaire has been sent out to the officers of the unions located in such countries as could be approached. Highly interesting and important responses have been received but the report on them is not yet ready.

International Union of Chemistry.—The president of the International Union of Chemistry reports that the Annual Tables of Constants and Numerical Data, which was issued on January 15, 1944, was the tenth installment of its publication. Funds derived from the sale of these tables before the American committee assumed responsibility have been placed with the National Research Council. The International Union of Chemistry has arranged for national committees to undertake specific activities, such as meeting problems of nomenclature and various kinds of standards. Recent reports on carbohydrate nomenclature and the nomenclature of pectic substances attest the activity of American groups. In addition the president of the International Union of Chemistry has kept in touch with leaders in chemical activities in England, Sweden, Switzerland, Australia and in various countries of Central and South America. He has also been active in an effort to obtain the release of a prominent Spanish chemist imprisoned because of political convictions.

American Standards Association.—The American Standards Association is maintaining contacts with national standardizing bodies in 11 countries (Argentina, Australia, Brazil, Canada, China, England, Mexico, New Zealand, South Africa, the Union of Soviet Socialist Republics, and Uruguay), and is exchanging data with them. The war has brought together representatives of the United Nations for coordinating standards necessary for the war effort and the immediate postwar period. The work of this group will be merged with that of the International Standards Association when peace is restored. In Latin-American countries the purposes of the Association have been promoted by contacts with engineering societies and governmental departments. A "standardization primer", printed in Spanish and Portuguese, is being widely circulated. Through the influence of the American Standards Association manufacturers of electrical goods have arranged for a large Spanish edition of the National Electrical Code. There appears to be general agreement that in the international aspects of interest in standards, cooperation will be more important in the future than it has been hitherto.

Science in Mexico.—The vice chairman of the Division has continued his interest in the growth of scientific activity in Mexico. He has aided in building up a library of mathematics and is developing a library of chemistry in Mexico City. Through Science Service he has been instrumental in spreading scientific information in a weekly science page of a newspaper having wide distribution. And through that Service also plans are under way for translating a number of scientific books originating in the United States for use in Latin-American countries. An advisory committee on scientific books of the Latin-American countries of which Dr. Shapley is chairman, will select several scores of American scientific volumes for deposit in American libraries to be established in Europe as occupied countries are liberated.

Astronomical literature.—A committee of the American Astronomical Society for distribution of astronomical literature has been sending a monthly Astronomical News Letter to astronomers in the United Nations and in various neutral countries. Also the committee has been shipping packages of current literature to Sweden, the Union of Soviet Socialist Republics, and Great Britain. In response to this careful interest in maintaining connections between astronomers and providing information, there has been a receipt of current foreign publications. Switzerland has been especially helpful, sending not only its own reports but also reports from Holland, Germany, and Italy. The activities of this committee possibly indicate the way in which reestablishment of international cooperation among scientists of the warring nations can be effectively initiated.

DIVISION OF PHYSICAL SCIENCES

LUTHER P. EISENHART, chairman; HENRY A. BARTON, vice chairman

Research directly bearing on war problems continues to take precedence in the activities of the members of the Division and of its committees over the fundamental research in fields in which the Division is normally concerned. This situation will no doubt prevail as long as physicists and mathematicians are in demand in the war effort. The Division is looking forward to a postwar program as will be seen in the account of a conference on this subject.

Mathematical tables.—The work of the various subcommittees of the committee on mathematical tables and other aids to computation has been interfered with due to the fact that the members are engaged in various war projects, principally in connection with the mathematical panel of the National Defense Research Committee. The Quarterly Journal, entitled "Mathematical Tables and Other Aids to Computation," the first issue of which appeared January 1943, has occupied most of the attention of the chairman of the committee, Dr. Raymond C. Archibald, as editor. The journal has proved itself useful in war research problems. At present there are 337 subscribers to the journal, including 100 in England. The number of contributors from both Great Britain and America is constantly increasing. Two departments of the periodical have been recognized as of special importance, the one devoted to errors in mathematical tables; and the other to unpublished mathematical tables, with the result that film copies of many manuscript tables have been secured. Beginning with No. 5 Dr. Derrick Henry Lehmer became an editor with Dr. Archibald; in the next number Dr. Leslie John Comrie and Dr. Solomon A. Joffe were added to the editorial board in a cooperative capacity.

Postwar physics.—A conference on postwar physics was held on Friday and Saturday, May 19 and 20, in the Hall of the American

Philosophical Society in Philadelphia and was made possible by grants from the National Research Council and the American Institute of Physics. The program was prepared under the direction of Dr. Barton, Director of the Institute, who is vice chairman of the Division. The following papers were presented and discussed: Physics in Education; Physics in Industry; Professional Standards in Physics; Organization of Physicists; Physics and Government; and Physics and Its Public Relations.

At a dinner meeting held on Friday evening, President Wickenden of the Case School of Applied Science, spoke on the Physicist and Society. The meeting was attended by 70 invited representatives of universities, research laboratories, the Army, the Navy, and Government agencies. A report concerning the meeting has been published in the Review of Scientific Instruments volume 15, No. 11, November 1944.

Physics of the Earth.—Sales of volumes VIII and IX in the Physics of the Earth series—Terrestrial Magnetism and Electricity, and Hydrology—continue at a gratifying rate. Orders are received also for the earlier volumes which are still in print.

In addition to the above activities, the Division has been occupied largely with the work of the advisory committee on scientific publications and of the committee on applied mathematical statistics, which are reported under "General activities" of the Council.

DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH

W. F. **Durand**, chairman; **Howard** A. **Poillon**, vice chairman

War metallurgy.—The war metallurgy committee has continued its work (1) on serving in an advisory capacity both to the National Defense Research Committee of the Office of Scientific Research and Development and to the Office of Production Research and Development of the War Production Board on problems in the field of metals and minerals; and (2) of appraising, formulating, placing, and directing, for these same war agencies, research projects in mineral technology and metallurgy. As of the close of the year (June 1944) this committee had established and supervised for the NDRC some 85 research projects under contracts totaling $3,400,000; and for the WPB 66 projects under contracts totaling $2,500,000. Twenty of the NDRC research projects and 32 of the WPB research projects had been completed.

The advisory and research reports to OSRD were concerned with metallurgical phases of the development and improvement of instrumentalities of warfare. The reports to WPB dealt with the recovery and processing of mineral raw materials; with conservation and substitution in the mineral and metal field; and with problems of metal production, fabrication, and treatment for a wide variety of war uses other than direct utilization in instruments of warfare.

A total of 193 advisory reports and 114 research reports have been issued to WPB. Research and advisory reports made to OSRD numbered 321.

The committee has operated with a full-time staff of 30 to 40 people and with an approximately equal number of part-time metallurgists and engineers, loaned by their regular employers. In addition, nearly

400 technical men have served without compensation on the committees that are set up for each individual project.

Quartermaster problems.—The committee on quartermaster problems has been very active during the year and has made numerous investigations and rendered confidential reports on problems arising under the war effort.

Industrial fatigue.—During the year the Division has been actively occupied in making arrangements for resumption of activity in the general line of research on fatigue in industry, using the word "fatigue" in the collective sense of "all factors or conditions which may adversely affect the relation of the employee to his job." A conference was held in New York City on February 9, attended by some 20 experts in various aspects of this broad field.

The Division has organized a special subcommittee for the purpose of studying the question of ways in which the activities of the committee on industrial fatigue may be usefully and effectively employed in connection with the general problem of rehabilitation and reconversion of industry under postwar conditions.

The committee has also organized a second subcommittee for the purpose of undertaking the study of the subject of nutrition, with reference to the efficiency of industrial workers. The special purpose of this latter subcommittee will be a survey and analysis of existing information on the subject, followed by the preparation of a brief manual or bulletin for wide distribution throughout the industry and intended to give useful and suggestive information for the benefit of industrial management throughout the country with reference to this important subject.

This committee under the Division of Engineering and Industrial Research continues in some respects the functions of an earlier committee of the Executive Board on work in industry, of which the late Dr. L. J. Henderson was the chairman. In January 1941 the committee on work in industry, at the request of Mr. Sidney Hillman of the Office of Production Management, undertook a study of the question, "What can be done to increase knowledge and improve understanding of supervision at the work level?" A report, with recommendations concerning the training of supervisors within the industry, was submitted to Mr. Hillman the following May. In October 1943 a report was received from Mr. Walter Dietz, associate director of the Training Within Industry Service of the War Manpower Commission, indicating that the recommendations of the committee had been put into effect with gratifying results. Later Mr. Dietz reported that more than 200,000 men had received supervisory training in shops throughout the country, in line with the committee's recommendations.

Mine-field clearance.—The extensive use of land mines has necessitated the development of counter measures to discover and eliminate this hazard to an advancing force. At the request of the Engineering Board, War Department, studies of certain phases of the problem were undertaken and recommendations made. Necessarily these are of a confidential character.

Censorship of scientific publications.—The Office of Censorship has made increasing use of the facilities of the Division to aid them in their decisions as to the propriety of publishing manuscripts submitted to them. This work supplements that of the advisory committee on scientific publications and has been brought about by the fact that the Division has been able to get quick action not otherwise obtainable.

Highway Research Board.—Some of the activities of the Highway Research Board may be summarized briefly as follows:

Three bulletins in the Wartime Road Problems series were issued: No. 6, Patching Concrete Pavements With Concrete; No. 7, Use of Soil-Cement Mixtures for Base Courses; and No. 8, Thickness of Flexible Pavements for Highway Loads. The preparation of three more bulletins on Compaction of Subgrades and Embankments, Soil-Bituminous Roads, and Treatment of Icy Pavements, for publication in the near future is under way.

Volume 22 of the proceedings, a volume of over 400 pages, was published in July 1943.

Ten issues of the Highway Research Abstracts were made during the year and the usual convention issue was published after the annual meeting in November 1943. An edition of the Roadside Development Reports presented at the 1942 meeting was published in mimeograph form.

The twenty-second annual meeting, which normally would have been held in Washington, was held at the Edgewater Beach Hotel in Chicago, November 27–30, 1943, with a registered attendance of 444, of which number 123 were attending a Board meeting for the first time. Approximately 50 reports and papers relating to highway research appeared on the program. The proceedings of this meeting will be printed and distributed.

Research projects are under way on Structural Design of Nonrigid Pavements, in cooperation with the Public Roads Administration and the Asphalt Institute, and on Treatment of Subgrade Soils for Frost Prevention, with the Calcium Chloride Association.

Industrial Research Institute.—The Industrial Research Institute was organized about 6 years ago, under the sponsorship of the Division of Engineering and Industrial Research, to encourage the best possible research management technique by providing an organization for the cooperative study of common problems.

The interest in this organization and its effectiveness have increased remarkably and plans are now under consideration to release it from the sponsorship of the National Research Council and establish it as an independent organization.

DIVISION OF CHEMISTRY AND CHEMICAL TECHNOLOGY

W. MANSFIELD CLARK, chairman; HARRIS M. CHADWELL, vice chairman

Antimalarial drugs.—During the past year the work of the Division has been concerned very largely with the chemistry of antimalarial drugs. The survey of antimalarial drugs, under the immediate supervision of Dr. Frederick Wiselogle, is being conducted under contract between The Johns Hopkins University and the Office of Scientific Research and Development on behalf of the Committee on Medical Research. The general supervision of policy has been by the chairman of the Division., The survey has in its files the basic data on more than 10,000 compounds that have been tested for antimalarial activity in several of the avian malarias. Information on antimalarial activity, chemical structure, et cetera, is filed either as received in confidence, in which case the pertinent information goes only to a panel of review and to those having actual need of the information in their experimental work; or, if released by the supplier, it is circulated in tables among those who continue active cooperation. On the staff of the survey, Dr. Kenneth Blanchard serves as contact man to coordinate the work of the survey with the pharmacological and chemical panels. The cooperation among all concerned in this vital program of the war effort has been most generous.

To supplement the synthetic work of numerous commercial firms and volunteers, the panel on the synthesis of new antimalarial drugs has been organized by the Division of Chemistry and some 25 academic institutions are now under contract with OSRD and engaged in this program. The immediate supervision of the program is under three regional directors: Dr. Robert Elderfield, for the East; Dr. Ralph Shriner, for the Middle West; and Dr. Joseph Koepfli, for the Pacific coast.

To provide a beginning on theoretical investigations in this difficult field, a modest program of biochemical research has been started with contracts at the University of Chicago, the University of Tennessee, the Medical School of the Johns Hopkins University, and the Medical School of Harvard University.

The Chairman of the Division has served on the board for the coordination of malarial studies. Its object is to coordinate service, Government, and civilian agencies in chemotherapeutic studies of malaria. The report of the board appears under the Division of Medical Sciences (p. 41).

Cortical hormones.—A conference composed of those under OSRD contract and volunteers from academic and commercial institutions has continued its cooperative effort to complete extremely difficult syntheses in the field of the cortical hormones. It may be reported that there have been made some very distinctive advances in an extremely difficult field, which will appear in the literature in due time.

Publications prepared or sponsored.—The Army Technical Manual TM-8-227, which is employed both as a teaching manual and as a handbook of methods in clinical laboratories, has been under revision by the National Research Council. The revision of the chemical sections was undertaken for the Division by Dr. Donald Van Slyke, of the Rockefeller Institute, who in the course of the work devised several new techniques of practical value.

It is noteworthy that the vitally important work on the annual tables has continued with a success which is remarkable under the circumstances. The mailing list comprises 680 addresses.

The report of the committee on chemical data for ceramists has been published as Bulletin 107 of the National Research Council. The demand for the List of Heads of Chemistry and Chemical Engineering in American Universities and Colleges has been such as to make advisable a third edition; this latest edition includes the heads of biochemical laboratories.

Dr. N. E. Dorsey, member of the committee on fundamental physical constants, has prepared an exhaustive and critical review of the work dealing with the determination of the velocity of light and has given his evaluation of the most probable value of that important constant. This monograph will be published by the American Philosophical Society.

As has been inevitable under the stress of the war effort, several of the committees of the Division have been inactive.

DIVISION OF GEOLOGY AND GEOGRAPHY

WILLIAM W. RUBEY, chairman; OTTO E. GUTHE, vice chairman

The Division of Geology and Geography has made its most significant contribution to American science over the years by encouraging the development of new or neglected fields of research, but this function is an exceedingly difficult one to maintain in time of war, when other less fundamental but more urgent obligations and opportunities for national service arise. The unprecedented wartime demands for mineral raw materials and for trained personnel have disclosed certain needs for coordination that are not met by the existing machinery of governmental agencies, industry, educational institutions, or national scientific societies; and the Division has endeavored to fill some of these gaps.

GEOLOGY

The shortage of trained geologists, which threatened during the first year of the war, became real by the spring of 1943 and grew more acute through the following year. Hundreds of younger geologists had joined the armed forces, many of them as photo-interpretation specialists, but others in capacities that make little use of their scientific training. With almost no new recruits entering geology from the universities, it became increasingly difficult to man the intensified programs of exploration for essential raw materials being carried on by Government and industry and to meet the growing demand for civilian geologists in terrain studies for military intelligence. Advances in theoretical aspects of the science came almost to a standstill because geologists had turned their hands largely to applied science, for which the demand was urgent, and because many of the experienced teachers who remained at their posts were needed to instruct military students in elementary meteorology, physics, cartography, photogrammetry, and other related subjects.

Geological personnel.—To meet the needs and to answer the specific questions arising from the manpower shortage, a committee on geological personnel was established in July 1943, with W. B. Heroy as chairman, to coordinate the personnel activities and records of the national geological societies and to provide data to interested governmental agencies. Largely as a result of evidence assembled and presented by this cooperative committee, the War Manpower Commission in August 1943 included geology among the critical occupations for which draft deferments were authorized. The Commission also added geology to the small number of scientific fields in which students could be deferred, but this means of relieving the shortage of trained personnel came to nothing a few months later when National Selective Service placed all deferments on an age rather than on an occupational basis. This committee, together with the committee on advising prospective geology students, began collaboration with representatives of the War Manpower Commission in the preparation of a bulletin describing the educational requirements, the nature of the work, and the professional opportunities in the field of geology. In many questions that have arisen from the constant changes in the national manpower situation and deferment policies, the committee on geological personnel and the chairman of the Division have worked closely with the Office of Scientific Personnel of the National Research Council. The committee has amply demonstrated its usefulness, and the need for its services is likely to continue through the remainder of the war and the period of reconversion and demobilization.

Maps.—In spite of the distractions of war, several research committees have been able to make substantial progress toward completion of projects undertaken years earlier. The tetonic map of the United States, to be published by the American Association of Petroleum Geologists, and the glacial map of North America, to be published by the Geological Society of America, are the work of Division committees. The two maps are now in process of engraving and final revision before printing some time within the next year.

Correlation charts.—Of the 13 correlation charts of sedimentary formations of North America being prepared by the committee on stratigraphy, 8 have now been completed and either have been or are being published in the Bulletin of the Geological Society of America. Five of these (on the Cambrian, Pennsylvanian, Cretaceous of Mexico, Cenozoic of the Coastal Plain and Caribbean region, and marine Cenozoic of western North America) were completed during the past year. Three of the five remaining charts are now nearing completion. Each chart in this series has been prepared by a subcommittee of individuals especially familiar with the formations involved.

Paleontology and geologic time.—Interest continues to be manifested in the work of several of the older research committees, the annual reports of which are in wide demand. The committee on marine ecology as related to paleontology performs a valuable service by stimulating cooperation between ecologists and paleontologists and by making more widely available new developments in paleontology. The third annual report of this committee includes a bibliography for the year and three brief papers on paleo-ecologic subjects. The reports of the committee on paleobotany include annual lists of published and unpublished work in American paleobotany and serve to bring together the specialists in this important borderline field. The bibliographies and original papers that appear regularly in the annual reports of the committee on the measurement of geologic time have proven very useful in recent years as a result of wartime interest in certain technical aspects of radioactivity and nuclear physics.

Genetics and paleontology.—At a time when the war has stopped almost all research on fundamental problems of geology, it is gratifying to report the keen interest being shown in one of the new committees of the Division. As the result of a suggestion made by Dr. W. H. Bucher, then Chairman of the Division, in a paper entitled "National Research Council and Cooperation in Geological Research" (Bull. Geol. Soc. Amer., vol. 53, pp. 1331–1354, 1942) a committee on common problems of genetics and paleontology was organized in February 1943, under the joint auspices of this Division and the Division of Biology and Agriculture. The purpose of this committee is to bring about a meeting of minds in the fields of genetics and paleontology—two highly technical disciplines which have much to contribute to one another regarding the complex problems of speciation in plants and animals. The committee has grown to a fairly large membership; it has held well-attended meetings in New York and Berkeley, Calif., and published an annual report of abstracts of the papers presented and two "round robins" of the written discussion that followed; and it has laid specific plans for holding, as soon as circumstances permit, a symposium which is to be published in book form.

Arctic Institute of North America.—Preliminary plans for the organization of an Arctic Institute of North America, the purpose of which would be to further scientific research on Arctic America after the war, were encouraged and supported by a small grant of funds.

GEOGRAPHY

During the year 1943–44 the majority of the members of the geographic committees were engaged in work directly relating to the war and to the training of men in the armed forces. It was therefore with difficulty that even those committees oriented to wartime needs were able to conduct their work.

Cartographic techniques.—The committee on cartographic techniques was formally appointed on October 2, 1943. It was found that the members were unable, for security reasons, to describe fully current technical innovations in cartographic techniques, but several topics are being prepared for issuance after the war. The purpose of this committee is the exchange of information on technical developments and the issuance of reports on such developments to interested persons.

Geographic profession.—The committee on training and standards in the geographic profession was approved in October 1943. This committee was active in developing procedures for reviewing the accomplishments of persons with geographical training, for investigating opportunities for the employment of geographers in fields for the most part outside academic and governmental spheres, and later for formulating recommendations for improvement in academic training in the geographic field.

The committee on manpower in the geographic profession was approved on February 5, 1944, for the purpose of cooperating with the War Manpower Commission in matters dealing with professional geographers. This committee furnished advice and reports to the Commission during the remainder of the year and issued a special release on the subject of the manpower situation in the geographic profession.

Other committees were active during the year, although at a reduced scale. The subcommittee on the census of professional geographers of the committee on geographic research, encouraged by requests from Government agencies, actively continued its organized analysis of the status of geographers in the United States. Three of the seven members of the committee on Asiatic geography, including the chairman, were in Asia for most of the year. During this time, the chairman worked closely with geographers and geologists in China and in India, discussing their research needs and supplying them with extensive lists of recent publications and with names of fellow scientists. The committee on Latin-American studies continued its active cooperation with the joint committee on Latin-American studies of the three councils, especially in regard to a field project of the National Planning Association.

DIVISION OF MEDICAL SCIENCES

LEWIS H. WEED, chairman; ROBERT F. LOEB, vice chairman

Medical fellowship board.—The fellowship program has continued despite the difficulties imposed by the war. The activities of the board have been facilitated by the extension of the term of the grant from the National Foundation for Infantile Paralysis, Inc. Arrangements are now being made at the request of the American Society of Anesthetists for the establishment of a series of fellowships in anesthesia under the board's administration.

American Registry of Pathology.—Twelve registries are now actively functioning under appropriations from various scientific organizations. The collection and distribution of material to medical schools for the teaching program in tropical medicine has been financed by the John and Mary R. Markle Foundation. Accessions to the registry in 1943 have increased markedly over 1942.

Problems of sex.—The Rockefeller Foundation has appropriated $135,000 in support of the activities of the committee for research in problems of sex during the 3-year period ending June 30, 1947. A conference on patterns and problems of primate sex behavior was held in New York in August 1943.

Endocrinology.—The demands of war have forced the withdrawal of certain investigators into work of military significance. The committee on research in endocrinology, however, regards the continuance of investigative activity not directly connected with war research as important in preserving the gains of the past and in maintaining continuity of research in the endocrine field. Investigations under committee auspices in recent years have resulted in the isolation of three pure hormones of the anterior pituitary—prolactin, the adrenotropic and the growth hormone.

Drug addiction.—The advisory committee on drug addiction has been inactive during the past year, but has been continued as an advisory body.

Medical problems of civil aviation.—At the request of the Administrator of Civil Aeronautics, the Division has appointed a committee under the chairmanship of Dr. E. Cowles Andrus to give counsel to the Civil Aeronautics Administration in medical problems of civil aviation. The committee will concern itself particularly with the determination of standards of physical and mental fitness of civil airmen, the validation of tests against airman performance, and a biostatistical analysis of all medical records.

Atypical growth.—On June 28, 1944, the executive committee of the Division approved the establishment of a committee for the study of neoplastic or atypical growths. This committee for the study of atypical growth is expected to undertake its work in the early fall of 1944 under the chairmanship of Dr. M. C. Winternitz.

Interdivisional committees.—The Division of Medical Sciences has cooperated in the activities of four interdivisional committees, all under the administration of other Divisions of the Council.

Military medicine.—The Division has continued to respond to requests for assistance from the armed services by the submission of professional advice or by the inauguration of research programs supported by the OSRD. Other governmental agencies in addition to the Surgeons General and the Committee on Medical Research have been served in an advisory capacity through its committees on military medicine.

One main committee, that on convalescence and rehabilitation, and two subcommittees, one on otolaryngology and one on pharmacy, have been established during the year.

The activities of the committee on drugs and medical supplies have declined, since most of the important problems in this field confronting the War Production Board have been solved. The committee will continue in existence and will be concerned chiefly with the problem of disposal of surplus stocks of drugs and medical supplies.

The subcommittee on medical food requirements has also been less active. Its recommendations in regard to foods needed by invalids in excess of those provided by the rationing system have been accepted by the Office of Price Administration.

Malarial studies.—At the request of the chairman of the Division, the Surgeons General of the Army, Navy, and Public Health Service and the Director of OSRD appointed representatives to a Board for the Coordination of Malarial Studies charged with responsibility for the effectuation of an over-all program for study of malaria. The Board also includes Dr. Robert F. Loeb as chairman and the chairmen of the panels on synthesis, biochemistry, pharmacology, and clinical testing of antimalarials. The Council maintains merely an administrative and fiscal relationship to the Board, and recommendations go directly to the three Surgeons General and the Committee on Medical Research.

Tropical diseases.—A similar agency has been established within the Divisions of Chemistry and Medical Sciences for study of other tropical diseases. A central office for reception and cataloging of drugs and organic chemicals has been established, as well as testing and pharmacological laboratories to ascertain the relative effectiveness of these chemicals against certain tropical diseases.

Medical information.—The Office of Medical Information has been considerably expanded under the grant of $75,000 from the Johnson and Johnson Research Foundation. Maj. Gen. James C. Magee, retired Surgeon General of the Army, has been appointed Director of the Office and several investigators and technical workers have been added to the staff. The files afford a broad picture of current medical advance, and a number of publications have been issued and distributed to investigators and medical officers during the year.

Lectures in tropical medicine.—Under a $40,000 grant from the John and Mary R. Markle Foundation, the Division's program of lectures in tropical medicine was continued through the fall of 1943 and has been received with increasing enthusiasm by the medical schools. Maps illustrating distribution of tropical diseases have been sent to the medical schools.

Medical records.—In response to a request from the Archivist of the United States, the Division established a committee on medical records to advise the National Archives on procedure for the preservation of those Federal medical records which are of enduring research and administrative value in the field of medicine. The committee's activities were supported by a grant of $5,000 from the John and Mary R. Markle Foundation. Under the chairmanship of Dr. George W. Corner, the committee is preparing a definitive report with recommendations for submission to the Archivist.

On April 20, 1944, the Division of Medical Sciences suffered a great loss in the tragic accidental death of Mr. Archie S. Woods, vice president and treasurer of the Markle Foundation. Mr. Woods had been a friend of the Council for many years, and at the annual meeting of the Division a resolution was passed expressing appreciation of the understanding and enthusiastic support which Mr. Woods had extended to its many enterprises.

DIVISION OF BIOLOGY AND AGRICULTURE

ROBERT F. GRIGGS, chairman; L. A. MAYNARD, vice chairman

The activities of the Division of Biology and Agriculture have been chronicled for the members and associates in a bimonthly report of the Chairman which has been distributed in mimeographed form. It has been recommended that a printed journal be established to include this report and the scientific contributions made by the divisional committees. Starting a new journal, however, will involve much consideration from the publication committee of the Council; therefore, the recommendation of the Division cannot be acted upon immediately. Some of the more significant items which have been dealt with fully in the reports are briefly noted here.

Animal nutrition.—Report No. 10 of the committee on animal nutrition, the Use of Phosphorus-Containing Substitutes for Bone Meal in Livestock Feeding, With Particular Reference to the Fluorine Hazard, was issued in mimeographed form in the summer of 1943. The committee is proceeding to work out the nutritive requirements of all farm animals, and has been successful in enlisting the cooperation of the ablest authorities in the different specialties concerned. Two of the reports, on poultry and on swine, are now in press. The series will appear as Recommended Nutrient Allowances for Domestic Animals.

Animal health.—Two reports of the committee on animal health were published in the Reprint and Circular Series of the National Research Council as Nos. 119 and 120, respectively: Recommendations for Prevention of Bloat in Cattle and Sheep, and the Recommendations for Increasing Milk Production Through Proper Milking and Mastitis Control.

The American Dairy Science Association at a meeting held with the committee in August 1943 requested the Council to investigate and report on the advisability of vaccination of adult cattle against Brucellosis with strain 19. A subcommittee appointed by the committee on animal health agreed on a report which constitutes a statement of what is known about this difficult problem and has made specific recommendations for further progress. This report will be published by the Council.

Biological processes of ageing.—The committee on biological processes of ageing was reorganized with Dr. William deB. MacNider as chairman. It is hoped that some significant research in the field of geriatrics will come from the efforts of this group and its counterpart in the food and nutrition board, the committee on the nutritional aspects of ageing.

Crop protection.—The committee on crop protection met at Purdue University on August 12 and 13, and in Columbus, Ohio, on December 9. This committee is doing very effective work in a difficult field. It is largely because of its work that the Agricultural Insecticide and Fungicide Association could report in its October News that—

> With the 1943 season closing all essential needs for agricultural insecticides and fungicides were met.
>
> Government agencies are showing increasing understanding of the problems. Coordination in Washington and cooperation with industry are steadily improving.
>
> WPB has presented the industry with tentative data for a 1944 program for Government allocations for some raw materials (arsenic for arsenicals, copper for the copper fungicides, etc.) that makes possible more intelligent programing and scheduling of production.

Three resolutions were approved by the committee and transmitted to the Secretary of Agriculture, the Chief of the Bureau of Entomology and Plant Quarantine, and the Agricultural Research Administrator recommending (1) the intensification and continuation of efforts in the eradication of barberry in order to safeguard the progress made in the production of new and better varieties of oats and wheat; (2) a campaign of education and eradication of buckthorn by Federal and State authorities in an attempt to eliminate the crown rust organism, *Puccinia coronata*, which is a menace for oats; (3) that the United States Department of Agriculture do everything possible to prevent the spread of the Dutch elm disease into middle western and northern United States.

Human heredity.—The committee on human heredity has received $1,950 from the Carnegie Corporation for the continuation of work already begun under its auspices as follows: Study of the inheritance of the new blood factor Rh, study of the inheritance of cerebral rhythms, and study on inheritance of hair color in identical and fraternal twins, making use of material collected in connection with the study of mental ability of twins now in progress.

Food and nutrition board.—The food and nutrition board continues to receive generous support for carrying out its ever-increasing responsibilities. In addition to the contract with the Food Distribution Administration for the support of the general work of the board, and the Office of the Quartermaster General for the work of the committee on food composition, the board is receiving financial aid from the Milbank Memorial Fund, the Nutrition Foundation, Inc., and the Josiah Macy, Jr., Foundation.

Five meetings of the board as a whole were held for the consideration of problems presented to it by the War Food Administration and other Federal agencies. A committee on food supply has been appointed to keep the Board advised on current facts respecting food supply, food policy, and food needs both in this country and abroad, and to formulate recommendations for building and maintaining suitable reserves to meet these needs.

Publications for general circulation during this period are: A Report on Margarine (NRC Reprint and Circular Series No. 118, August 1943), and Inadequate Diets and Nutritional Deficiencies in the United States (NRC Bulletin No. 109, November 1943). A comprehensive manual on in-plant feeding of industrial workers is in final draft. A critique on nutrition studies pertaining to the influence of supplements on growth, health, and physical fitness has been prepared by the committee on diagnosis and pathology of nutritional deficiencies.

The report, Recommended Adjustments of Food Supply During the Emergency (mimeographed), has had considerable circulation. This, together with a short version prepared for more general distribution and called How We Can Share Our Food and Maintain Good Nutrition at Home, outlines a program whereby this country, by making adjustments in food utilization and production, can play its maximum role in feeding the victims of war, while assuring good nutrition for our own people.

The research project under way at the Elgin (Illinois) State Hospital under the direction of the committee on nutritional aspects of ageing is now standardized as to its procedure and it is expected that important knowledge will be gained concerning the nutritional requirements of persons of more advanced ages.

The committee on food composition, with Dr. Elvehjem as chairman and Dr. Paul Pavcek as full-time secretary, has assembled and critically appraised a vast amount of food composition information urgently needed by the Office of the Quartermaster General. Progress is being made toward the preparation of tables of food composition in collaboration with our Canadian allies.

Not the least of the board's functions has been its role as coordinator in bringing the scientific experts of other countries into contact with academic, governmental, and industrial representatives of the United States.

Tropical Plant Research Foundation.—The Tropical Plant Research Foundation was finally liquidated with the transmittal of $4,063.73 to the Division on November 19. The tropical plant research fund will be available for the study of problems of tropical agriculture.

Food and animal feed.—On account of the serious difficulty of finding sufficient food and feed to meet our national and international obligations, the Chairman of the Council on behalf of the food and nutrition board sent a statement on the wheat position and outlook to a number of responsible officers of the Government.

Agricultural board.—A conference of leading agriculturists called by the Council on March 8 recommended (1) that a special committee on fellowships and grants-in-aid for research workers in agriculture be established; (2) that an agricultural board similar to the food and nutrition board be set up. The agricultural board was authorized at the April 26 meeting of the executive board of the Council. A new committee on fellowships in agriculture is under consideration.

At the annual meeting of the Division, the Soil Science Society and the Wildlife Society were each invited to nominate one representative on the Division.

DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

LEONARD CARMICHAEL, chairman; RALPH LINTON, vice chairman

The changing demands of the separate phases of war mobilization have had a direct effect upon the part which the Division has played in the war effort, and throughout the year its active committees have continued to modify their techniques and points of emphasis to meet these new conditions. As a result, the Division has assisted not only in the development of better techniques for the proper selection of men for special tasks but also in the provision of new scientific procedures in the field of training, and is now even directing its attention toward problems of demobilization, rehabilitation, and educational and vocational guidance. Of course, much of the important and interesting work carried out by the Division during the past year is still confidential or restricted and cannot be reviewed at this time. However, the following brief summaries will reveal the character and scope of the Division's activities:

African anthropology.—Because of other demands on the time of the chairman, Dr. M. J. Herskovits, and other committee members and the change in military operations from the African theater, no new projects were undertaken during the year. Installments 4 and 5 of the Personnel List of Africa were completed, together with a consolidated index which makes for more effective utilization of the lists by military and governmental agencies desiring information on individuals with experience in that particular territory. The Bibliography of North Africa, which has been under way for some time, is still in the process of compilation. Projects in the preliminary stage include a list of native names of diseases, outlines of tribal customs, and a series of military ethnographic studies.

Applied psychology and the war.—Upon the creation of the applied psychology panel by the National Defense Research Committee, the committee on service personnel—selection and training was discharged as a National Research Council committee, and on December 15, 1943, a new committee on applied psychology and the war was formed under the chairmanship of Dr. John M. Stalnaker, for the purpose of conducting preliminary research on problems referred to it by the panel. This work, which is of a confidential nature, involves research in which the armed services are interested.

Child development.—Although the committee on child development has held no meetings during the past year, three reports have been prepared as an outgrowth of the conference of March 1943. Despite a serious lack of funds, the publication program of the Society for Research in Child Development has been carried forward in its usual efficient way.

Classification of military personnel.—The committee on classification of military personnel advisory to the Adjutant General's office, under the chairmanship of Dr. W. V. Bingham, in May of this year completed its fourth year of service. The advisory board on mechanical and technical personnel, the formation of which was reported last year, has held several meetings and made recommendations with regard to problems of selecting men for training in mechanical occupations. The members of the parent committee have continued to advise on many matters of concern to the office of The Adjutant

General. These have included, among others, such topics as rehabilitation, vocational counseling, radio code learning, officer candidate selection, and reclassification of enlisted personnel and officers prior to separation from the services.

Emergency committee in psychology.—The emergency committee in psychology, under the chairmanship of Maj. Karl M. Dallenbach, has functioned in liaison with coordinate committees, Government agencies concerned with various aspects of psychological work, and the services. During the year the following subcommittees have been discharged upon completion of their work or duplication or absorption of their assignments by other organizations: Subcommittee on perceptual problems, subcommittee on learning and training, subcommittee on the listing of personnel in psychology, and subcommittee on services of women psychologists in the emergency. Special committees have dealt with the listing of translators, the listing of psychologists' activities, the surveying of opportunities for training in psychology, the unification of psychological services in the Military Establishment, the possibility of forming a subcommittee on industrial psychology, and planning for the safeguarding of psychological tests and other personnel devices developed by the services. Standing subcommittees have been active in the following areas: Stimulation of interest in problems of mental deficiency from both military and civilian standpoints and the gathering of data on the military success of mental defectives and on their success in war industries; outlining of ways in which psychology might be utilized in periods of rehabilitation and demobilization; preparation last year of a textbook in military psychology at the collegiate level, and of Psychology for the Returning Serviceman, to be used as a sequel to Psychology for the Fighting Man; and study of problems in the selection and training of combat leaders. The subcommittee on survey and planning has continued to submit proposals to the parent committee on many varied phases of opportunities confronting psychologists. As a result of a recent recommendation from this subcommittee a subcommittee has been appointed to survey the present occupational standards for psychologists that have been established by civil service, State merit commissions, school boards, etc., with a view of improving the professional specifications for psychologists and the levels of qualifications within each class of service.

Food habits.—The committee on food habits, under the chairmanship of Dr. Carl E. Guthe, has, as in previous years, held periodic conferences and liaison meetings. Dr. Margaret Mead, executive secretary of the committee, spent the summer and early fall of 1943 in England on a lecture tour under the sponsorship of the Office of War Information and the British Ministry of Information, during which time she was able to investigate various aspects of the British food program relevant to the work of the committee. Publications of the work of the committee have been numerous and have included results of various attitude studies, special reports prepared for various Government departments, bibliographies, and a summary of the first 2 years of work, issued as National Research Council Bulletin No. 108, The Problem of Changing Food Habits. From special grants made to the committee have emerged studies on psychosomatic mechanisms in obesity and allergy in childhood, the role of containers in food habits, the role of milk in American culture, and methods of changing attitudes toward a specific food, the last of which is still under way.

History of psychology and the war.—The committee on history of psychology and the war, established in January of 1944 under the chairmanship of Dr. R. M. Yerkes, as its title suggests, is planning for the preparation of a historical record of the activities of psychologists in World War II. A board of consultants, representing the various agencies and organizations in which psychological work has been carried on, will assist the committee in the procurement and preparation of materials for the history.

Office of psychological personnel.—The office of psychological personnel, now in its third year, has under the directorship of Dr. Donald G. Marquis during the past year not only effectively carried out the duties with which it was originally charged but, as the war situation has changed, has assumed new and varied functions, in order to make for the maximum effective utilization of psychologists throughout the country, both within and without the armed services. Recent developments, for example, have been an extensive survey of the present and future employment situation in psychology, and the appointment of Dr. Robert R. Sears as consultant to survey the possibilities of utilization of clinical psychologists in the armed services.

Latin-American psychology.—The committee on Latin-American psychology has held no meetings during the year but its work continues in the line of publication of articles on Latin-American psychology, arranging for exchanges of journals, and the reviewing of Latin-American books on psychology.

Problems of neurotic behavior.—Early in 1944 the journal Psychosomatic Medicine, together with its monograph supplements, was transferred to the newly incorporated American Society for Research in Psychosomatic Problems to serve as its official organ. Upon completion of this transfer, the committee on problems of neurotic behavior, under the chairmanship of Dr. Walter R. Miles, which had sponsored the journal since 1939, requested that it be discharged.

Selection and training of aircraft pilots.—The committee on selection and training of aircraft pilots, under the chairmanship of Dr. Morris S. Viteles, has continued to be financed by the Civil Aeronautics Administration, and research on the selection, training, and maintenance of flying personnel is being carried on as in the past at various universities throughout the country. A central statistical unit at the University of Rochester which is under the part-time directorship of Dr. Henry S. Odbert, technical aide to the committee, is effectively handling the data emanating from the various experimental centers. An expanded editorial staff in the office of the chairman is constantly preparing for publication reports from project directors in the field. These reports, covering all phases of the committee's research, are sent to a selected distribution list of interested individuals. One of the most notable developments which has occurred under this important committee is the establishment of an Institute of Aviation Psychology at the University of Tennessee, under the directorship of Dr. Robert Y. Walker. In the words of the chairman:

> Through such an institute, and others like it at other universities, steps can be taken to avoid the unfortunate cessation of basic and practical research which occurred at the close of the last war.

War service of anthropologists.—Prior to the annual meeting of the Division last year a committee on war service of anthropologists was formed under the chairmanship of Dr. Ralph Beals for the purpose of preparing a report on the activities of anthropologists in the war effort. This report, entitled "Anthropology During the War and After," was distributed to anthropologists all over the country. It is believed that in addition to giving members of the anthropological profession a more comprehensive idea of what anthropologists were doing than had been possible previously, this report served to maintain instruction in anthropology in various institutions in which it might have been done away with or at least curtailed. Because of various facts which this preliminary survey had revealed, the committee undertook a second survey "to discover what new trends in anthropological teaching and research might result from the war." A report on the results of this survey is being prepared for publication in an anthropological journal or for mimeographed distribution.

REPORT OF THE TREASURER

For the fiscal year ending June 30, 1944

NOVEMBER 15, 1944.

To the PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES:

The statements and schedules that follow constitute the treasurer's report and reflect the financial condition of the National Academy of Sciences and the National Research Council as at June 30, 1944, and the results of operations for the fiscal year ended on that date. In accordance with past practice, the financial data relative to the Academy and Research Council are reported separately.

NATIONAL ACADEMY OF SCIENCES

Investments.—The Academy's investments, which are shown in detail in schedule A–1, are summarized here to show, by classes of investments, the book and market values as at June 30, 1944, and the income received during the year.

Despite a considerable change in the individual items held, there was little change in the over-all percentage distribution from a year ago. Bonds held increased by 2.6 percent, due largely to purchases of United States Government bonds. Preferred stocks were down 1.5 percent, common stocks decreased 0.6 percent, and changes in other classifications were nominal in amount.

Summary of investments owned by National Academy of Sciences, as at June 30, 1944

	Book value	Market value	Income received
Current general funds:			
Bonds	$109,675.00	$115,090	$4,041.18
Stocks	1,859.40	1,630	89.30
Total current general funds	111,534.40	116,720	4,130.48
Current restricted funds:			
Bonds	6,150.00	6,300	297.00
Stocks	1,859.40	1,630	89.30
Total current restricted funds	8,009.40	7,930	386.30
Trust and endowment funds:			
Bonds:			
Railroad	551,611.25	570,777	22,128.59
Utility	295,257.50	312,160	7,704.67
Industrial	175,680.75	191,975	8,921.04
U. S. Government	275,062.50	270,150	2,918.89
Foreign	18,400.00	18,350	1,121.40
Total bonds	1,316,012.00	1,363,412	42,794.59
Preferred stocks	495,068.17	533,237	19,991.86

Summary of investments owned by National Academy of Sciences, as at June 30, 1944—Continued

	Book value	Market value	Income received
Trust and endowment funds—Continued			
Common stocks:			
Railroad	$18, 503. 17	$27, 600	$1, 485. 00
Utility	132, 691. 41	159, 812	10, 399. 50
Industrial	788, 358. 07	878, 327	42, 617. 02
Bank and insurance	222, 782. 63	258, 269	8, 964. 44
Others	120, 238. 99	129, 773	7, 157. 70
Total common stocks	1, 282, 574. 27	1, 453, 781	70, 623. 66
Mortgages	144, 314. 28	[1] 64, 500	3, 163. 73
Real estate	124, 900. 00	[1] 20, 000	1, 846. 82
Total trust and endowment funds	3, 362, 868. 72	3, 434, 930	138, 420. 66
Income from securities sold and called			30, 492. 59
Grand total	3, 482, 412. 52	3, 559, 580	173, 430. 03

[1] Estimated.

Other data relative to the investment portfolio may be shown as follows:

	June 30, 1944	June 30, 1943
(1) Book value of all investment assets	$3, 482, 412	$3, 259, 456
(2) Market value of all investment assets	3, 559, 580	3, 367, 846
(3) Ratio of market value to book value (percent)	102	103
(4) Investment reserve (deficit)	675, 368	759, 311

The increase during the year in the total book value of investments owned was due largely to (1) the reinvestment of profits on sales, (2) the investment of approximately $100,000 of the Carnegie Endowment Income Fund, and (3) the investment of approximately $44,000 of funds held for retirement purposes.

The principal of the funds participating in the Consolidated Fund and the income from the pooled investments distributed to these funds are summarized in schedule B–3 (*a*) of this report.

Income of $173,430.03 from all investments was $6,154.30 more than in the previous fiscal year. During the year ended June 30, 1944, the rate of return on the average book value of all investments was 5.13 percent, as compared with 4.96 percent during the previous year.

The Bank of New York continued to act as custodian of securities and Mr. Horace S. Ford as financial adviser.

Operations.—During the year under review the current operations of the Academy were quite similar in nature and volume to those of the previous year. In accordance with past procedure, nearly all research projects in connection with requests from the United States Government, which were embodied in formal contracts between the Academy and the departments or agencies concerned, were supervised by committees of the National Research Council under authority of the Council of the Academy. The financial data relating to such work are reflected in the second part of this report.

Exhibit B and supporting schedules reflect in summary and in detail the financial transactions in the various funds during the year.

NATIONAL RESEARCH COUNCIL

Investments.—The investments held by funds of the National Research Council are shown in detail in schedule A-1 and are summarized below to show, by classes of investments, the book and market values as at June 30, 1944.

Class of investments	Book value	Market value
Railroad bonds	$47, 803	$46, 072
Industrial bonds	10, 161	10, 150
U. S. Government bonds	10, 000	10. 000
Foreign-government bonds	14, 109	13, 720
Preferred stocks	24, 056	25, 570
Common stocks	27, 316	34, 047
Mortgages and real estate	30, 043	[1] 17, 750
Total	163, 488	157, 309

[1] Estimated.

Income of $8,472.97, during 1943–44, from all investments of the Council represented a return at the rate of 5.36 percent on the average book value of investments owned.

Operations.—During the fiscal year ended June 30, 1944, the National Research Council received funds as follows in support of the general fund budget:

148,809.5

Carnegie Endowment Fund income	$62, 809. 59
Transfer from the National Academy of Sciences on account of administrative and overhead expenses in connection with Government-financed projects	86, 000. 00
Rockefeller Foundation for support of the administrative budget	15, 000. 00
Total	163, 809. 59

From the budget supported by the above funds the Research Council maintained its central administrative and divisional offices and certain other departments that render services to the Council as a whole.

Government-financed projects accounted for receipts of $1,022,150 while $332,956 were received from private sources for specific projects. Therefore, about 75 percent of the Research Council's energies, as measured by funds involved, were devoted to work requested by departments and agencies of the United States Government. This work was carried out under authority of the Council of the Academy and in accordance with the terms of formal contracts between the Academy and the departments or agencies concerned with the work.

Exhibits A and B, and related schedules, provide data on the condition of the various funds on June 30, 1944, and the operations for the year ended on that date.

Respectfully submitted.

JEROME C. HUNSAKER, *Treasurer.*

EXHIBIT A

NATIONAL ACADEMY OF SCIENCES

Balance sheet as at June 30, 1944

ASSETS

Cash in banks, Washington		$104, 318. 30	
Due from Bank of New York (overdraft)		[1] 40. 34	
Investments owned (schedule A-1):			
Current general funds	$111, 534. 40		
Current restricted funds	8, 009. 40		
Trust and endowment funds	3, 362, 868. 72		
		3, 482, 412. 52	
Property account (at cost):			
Building	$1, 457, 202. 48		
Grounds	187, 042. 98		
Equipment	16, 150. 11		
		1, 660, 395. 57	
Total assets			$5, 247, 086. 05

LIABILITIES

Fund balances (exhibit B):			
Current general funds	$155, 682. 00		
Current restricted funds	81, 361. 27		
Trust and endowment funds	3, 349, 647. 21		
		3, 586, 690. 48	
Capital invested in property and equipment		1, 660, 395. 57	
Total liabilities			5, 247, 086. 05

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[1] Indicates red figures.

SCHEDULE A-1.—*Investments owned as at June 30, 1944*

	Face value or number of shares	Book value	Market value
CURRENT GENERAL FUNDS			
Bonds:			
Laclede Gas Light Co. 5½'s, 1953	$2, 000	$2, 000. 00	$1. 900
New York, Lackawanna & Western Ry. Co. 4's, 1973	$12, 000	7, 330. 00	9, 600
Portland General Electric Co. 4½'s, 1960	$50, 000	49, 845. 00	52, 000
Virginia Corporation 5's, 1952	$50, 000	50, 500. 00	51, 500
Stocks: Inland Steel Co. common	20	1, 859. 40	1, 630
Total current general funds		111, 534. 40	116, 720
CURRENT RESTRICTED FUNDS			
Bonds: Tidewater Power Co. 5's, 1979	$6, 000	6, 150. 00	6, 300
Stocks: Inland Steel Co. common	20	1, 859. 40	1, 630
Total current restricted funds		8, 009. 40	7, 930
TRUST AND ENDOWMENT FUNDS			
Bonds:			
Railroad:			
Atlantic Coast Line R. R. Co. 4½'s, 1964	$54, 000	47, 590. 00	46, 035
Boston & Maine R. R. Co. 4's, 1960	$50, 000	41, 371. 25	46, 125
Central Pacific Ry. Co. 5's, 1960	$45, 000	39, 772. 50	40, 050
Cleveland, Cincinnati, Chicago & St. Louis Ry. Co. 4½'s, 1977	$40, 000	38, 380. 00	29, 300
Delaware & Hudson Co. 4's, 1943	$40, 000	27, 945. 00	38, 200
Illinois Central R. R. Co 4's, 1952	$60, 000	44, 913. 75	49, 800
Illinois Central R. R. Co 4's, 1955	$35, 000	30, 450. 00	28, 875
Lehigh Valley Ry. Co. 4½'s, 1950	$40, 000	24, 031. 25	29, 900
Louisiana & Arkansas Ry. Co. 5's, 1969	$50, 000	47, 526. 25	50, 750
Missouri Pacific R. R. Co. 5's, 1978-81	$35, 000	20, 887. 50	22, 925
New York, Lackawanna & Western Ry. Co. 4's, 1973	$28, 000	16, 870. 00	22, 400
Norfolk & Southern Ry. 4½'s, 1998	$25, 000	20, 755. 00	21, 968
Northern Pacific Ry. Co. 4's, 1997	$25, 000	23, 080. 00	25, 200
Pere Marquette Ry. Co. 4½'s, 1980	$30, 000	29, 662. 50	27, 862
Southern Pacific R. R. Co. 4's, 1955	$30, 000	28, 307. 50	30, 225
Southern Pacific Co.—Oregon Lines 4½'s, 1977	$30, 000	29, 962. 50	25, 275
Southern Railway Co. 4's, 1956	$30, 000	25, 275. 00	25, 687
West Shore R. R. Co. 4's, 2361	$15, 000	14, 831. 25	10, 200
Total		551, 611. 25	570, 777

SCHEDULE A-1.—*Investments owned as at June 30, 1944*—Continued

	Face value or number of shares	Book value	Market value
TRUST AND ENDOWMENT FUNDS—continued			
Bonds—Continued			
Utility:			
Laclede Gas Light Co. 5½'s, 1953	$28,000	$28,047.50	$27,860
New England Gas & Electric Association 5's, 1947	$40,000	32,617.50	35,150
New England Power Association 5½'s, 1954	$45,000	46,172.50	46,125
Puget Sound Power & Light Co. 4¼'s, 1972	$30,000	31,275.00	32,625
Shawinigan Water & Power Co. 4½'s, 1967	$40,000	35,712.50	42,000
Third Avenue Ry. Co. 4's, 1960	$50,000	36,292.50	40,000
Tide Water Power Co. 5's, 1979	$44,000	44,575.00	46,200
Western Union Telegraph Co. 5's, 1951	$40,000	40,565.00	42,200
Total		295,257.50	312,160
Industrial:			
Eastern Gas & Fuel Associates 4's, 1956	$40,000	35,497.50	39,400
General Steel Castings Corp. 5½'s, 1949	$40,000	38,895.00	41,800
Glen Alden Coal Co. 4's, 1965	$40,000	34,967.00	40,600
New York Dock Co. 4's, 1951	$30,000	26,397.50	28,875
United Stock Yards 4¼'s, 1951	$40,000	39,923.75	41,300
Total		175,680.75	191,975
U. S. Government:			
U. S. Defense Savings 2½'s, 1953-56	$150,000	150,000.00	145,000
U. S. Treasury 2¼'s, 1956-59	$75,000	75,000.00	75,150
U. S. Treasury 2¼'s, 1965-70	$50,000	50,062.50	50,000
Total		275,062.50	270,150
Foreign: Argentine Republic 4's, 1972	$20,000	18,400.00	18,350
Total bonds		1,316,012.00	1,363,412
Stocks:			
Preferred:			
Consolidated Edison Co. of New York, 5 percent	500	47,586.75	53,187
Crane Co., convertible, 5 percent	500	52,780.00	54,000
Goodyear Tire & Rubber Co., 5 percent	500	50,025.00	55,500
Jones & Laughlin Steel Corp., 5 percent	500	28,358.07	35,000
North American Co. (par. $50), 6 percent	800	44,553.39	43,800
Public Service Corp. of New Jersey, 5 percent	500	50,487.20	48,750
Pure Oil Co., 5 percent	500	51,625.00	52,500
Radio Corp. of America, $3.50	500	36,089.86	37,500
Tide Water Associated Oil Co., $4.50 cash credit	500	43,856.13	52,250
Union Pacific R. R. Co., 4 percent	500	41,017.77	49,000
United Aircraft Corp., 5 percent	500	48,689.00	51,750
Total preferred stocks		495,068.17	533,237
Common:			
Industrial:			
American Can Co	500	41,140.74	44,875
American Tobacco Co., B	400	24,373.17	28,700
Anaconda Copper Mining Co	1,000	29,112.05	26,875
Central Aguirre Associates	1,700	30,898.07	36,550
Cluett Peabody & Co., Inc	1,000	35,821.49	37,625
Corn Products Refining Co	500	39,733.82	29,187
Draper Corp	500	33,007.17	36,875
General Motors Corp	500	19,753.18	32,250
Hazel-Atlas Glass Co	500	53,180.30	51,750
Inland Steel Co	400	34,433.20	37,365
International Nickel Co. of Canada, Ltd	1,000	33,834.06	31,750
Kennecott Copper Corp	1,000	35,129.73	32,375
Lehman Corp	1,000	26,349.40	34,250
Liquid Carbonic Corp	2,000	29,703.56	55,500
New Jersey Zinc Co	500	29,059.82	31,500
Philip Morris & Co., Ltd., Inc	600	52,104.75	54,300
Phillips Petroleum Co	1,000	45,735.00	44,000
St. Joseph Lead Co	1,000	33,642.74	33,000
Standard Oil Co. of Indiana	600	18,946.00	19,650
Standard Oil Co. of New Jersey	1,000	38,112.79	57,000
Standard Oil Co. of Ohio	300	12,613.50	12,525
Tybor Stores, Inc	1,000	500.00	800
United Fruit Co	500	36,250.00	42,875
United Shoe Machinery Corp	500	27,793.53	36,750
U. S. Smelting, Refining & Mining Co	500	27,130.00	30,000
Total		788,358.07	878,327
Railroad: Atchison, Topeka & Santa Fe Ry. Co	400	18,503.17	27,600

SCHEDULE A-1.—*Investments owned as at June 30, 1944*—Continued

	Face value or number of shares	Book value	Market value
TRUST AND ENDOWMENT FUNDS—continued			
Stocks—Continued			
Common—Continued			
Utility:			
Boston Edison Co.	1,000	$24,406.57	$35,625
Commonwealth Edison Co.	1,000	20,876.77	27,375
Connecticut Light & Power Co.	1,000	29,910.39	41,625
Consolidated Edison Co. of New York	1,000	29,125.36	24,250
Detroit Edison Co.	1,500	28,370.32	30,937
Total		132,691.41	159,812
Bank and insurance:			
Bank of New York (New York)	50	18,110.00	19,900
Bankers Trust Co. (New York)	500	26,125.00	26,000
Chase National Bank (New York)	500	15,666.00	19,812
Chemical Bank & Trust Co. (New York)	700	33,304.50	36,225
Continental Illinois National Bank & Trust Co. (Chicago)	360	26,625.87	36,000
First National Bank of Boston (Boston)	800	37,121.26	39,600
Guaranty Trust Co. of New York (New York)	100	27,982.50	34,000
Massachusetts Bonding & Insurance Co. (Boston)	300	18,932.50	20,220
National City Bank (New York)	700	18,915.00	26,512
Total		222,782.63	258,269
Other:			
Bond Investment Trust of America	400	41,452.00	40,648
Commercial Credit Co.	1,000	21,578.51	42,000
Commercial Investment Trust Corp.	1,000	57,208.48	47,125
Total		120,238.99	129,773
Total common stocks		1,282,574.27	1,453,781
Mortgages:			
1601 First Ave., New York, 2 percent		50,000.00	10,000
10-16 Manhattan Ave., New York, 3½ percent (5 percent participation)		6,314.28	2,500
3d Ave. and 170th St., New York, 2½ percent (50 percent participation)		28,000.00	12,000
229-235 East 79th St., New York, 3 percent (10 percent participation)		60,000.00	40,000
Total		144,314.28	[1] 64,500
Real estate:			
673-675 Fulton St., Brooklyn		70,000.00	10,000
341 East 149th St., New York		50,000.00	8,000
29 3d Ave., Brooklyn (19.6 percent participation)		4,900.00	2,000
Total		124,900.00	[1] 20,000
Total trust and endowment funds		3,362,868.72	3,434,930
Grand total (exhibit A)		3,482,412.52	3,559,580

[1] Estimated.

EXHIBIT B

NATIONAL ACADEMY OF SCIENCES

Statement of receipts, expenditures, and fund balances for the period July 1, 1943, to June 30, 1944

	Balances July 1, 1943	Receipts	Expenditures	Balances June 30, 1944
CURRENT GENERAL FUNDS				
Academy general fund	$12,607.46	$5,845.47	$5,628.10	$12,824.83
Carnegie Endowment Income Fund	[1] 140,272.58	152,226.83	(149,642.24)	142,857.17
Subtotal	152,880.04	158,072.30	155,270.34	155,682.00

[1] Includes $11,539.54 shown in June 30, 1943, report as "Appropriations under Custodian of Building and Grounds."

Statement of receipts, expenditures, and fund balances for the period July 1, 1943, to June 30, 1944—Continued

	Balances July 1, 1943	Receipts	Expenditures	Balances June 30, 1944
CURRENT RESTRICTED FUNDS				
Academy emergency grant	$54,547.28	$90,533.71	($127,895.22)	$17,185.77
Academy emergency grant, Academy Government projects	6,589.09	9,556.58	12,528.41	3,617.26
Building-site fund	8,489.48	386.30	29.69	8,846.09
Carnegie Corp., special	7,737.55		7,737.55	
Expenses, fund for research	2,230.53	992.00	3,115.33	107.20
Federal-tax withheld account	[2] 337.49	5,514.88	5,447.93	404.44
Fees to financial advisers		4,240.84	4,240.84	
Hale Lectureship Fund	385.55			385.55
National park problems	80.79			80.79
National Science Fund	8,527.12	13,591.00	4,681.50	17,436.62
Academy Proceedings	5,967.07	2,820.74	2,500.00	6,287.81
Joint Proceedings	9,073.18	7,939.59	5,143.13	11,869.64
Emergency fund Proceedings	3,327.79			3,327.79
Scientific publication fund	1,761.06	6.25		1,767.31
Special insurance fund	12,485.00	27.50	2,467.50	10,045.00
Subtotal	121,538.98	135,609.39	175,787.10	81,361.27
TRUST AND ENDOWMENT FUNDS			531,057.44	
Bache Fund:				
Principal	60,000.00			60,000.00
Income	5,160.62	3,324.68	741.86	7,743.44
Billings Fund, income		1,169.08	1,169.08	
Carnegie Endowment Fund, principal	3,550,000.00			3,550,000.00
John J. Carty Medal and Award Fund, income	981.21	1,230.40	92.90	2,118.71
Comstock Fund:				
Principal	15,000.00			15,000.00
Income	6,241.38	1,008.53	15.61	7,234.30
Consolidated fund:				
Principal	242,213.43	45,649.40		287,862.83
Income	1,391.10	13,776.14	14,182.16	985.08
Draper Fund, income	962.68	492.42	36.92	1,418.18
Elliot Fund, income	2,766.40	393.53	407.78	2,752.15
Gibbs Fund, income	3,875.30	272.76	20.43	4,127.63
Gould Fund:				
Principal	20,000.00			20,000.00
Income	12,898.60	1,478.67	971.20	13,406.07
Hartley Fund, income	447.40	58.91	57.75	448.56
Joseph Henry Fund, income	2,406.82	2,172.69	2,163.76	2,415.75
Investment reserve fund	[3] 759,310.76	118,197.73	34,254.97	[3] 675,368.00
Marsh Fund, income	526.48	984.27	74.23	1,436.52
Murray Fund, income	790.87	492.41	36.92	1,246.36
Retirement fund, income		883.82	44.19	839.63
Smith Fund, income	9,055.70	772.17	138.59	9,689.28
Thompson Fund, income	4,265.25	492.41	1,218.11	3,539.55
Walcott Fund, income	843.80	245.58	18.64	1,070.74
Watson Fund:				
Principal	25,000.00			25,000.00
Income	6,289.39	1,168.00	776.96	6,680.43
Subtotal	3,211,805.67	194,263.60	56,422.06	3,349,647.21
Total	3,486,224.69	487,945.29	387,479.50	3,586,690.48
Cash in banks:				
Balances July 1, 1943:				
Washington		220,301.23		
New York		6,467.35		
Increase in investments owned,[4] July 1, 1943, to June 30, 1944			222,956.41	
Balances June 30, 1944 (exhibit A):				
Washington			104,318.30	
New York			[3] 40.34	
Total		714,713.87	714,713.87	

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[2] This amount included under "Appropriations under Custodian of Building and Grounds" in June 30, 1943, report.

[3] Indicates red figures.

[4] Not reflected above.

SCHEDULE B–1.—*Accounts with individual funds for the fiscal year ending June 30, 1944*

CURRENT GENERAL FUNDS

		Academy general fund	Carnegie Endowment Income Fund
Balances July 1, 1943:			
Cash		$1,008.06	$140,272.58
Invested		11,599.40	....
Receipts:			
Income from investments:			
Agassiz Fund	$2,460.24		
Nealley Fund	962.21		
Invested income	699.14		
Total income from investments		4,121.59	151,616.81
Annual dues		1,675.00	....
Miscellaneous receipts		48.88	610.02
Total		18,452.93	292,499.41
Disbursements:			
General expense (schedule B-1 (a))		5,288.40	....
Building and grounds expense (schedule B-1 (b))		....	52,815.80
Accrued interest on purchase of bonds		32.26	6,783.14
Transfer to Fees to financial advisers		101.36	3,766.71
Transfer to Investment reserve fund		206.08	7,583.07
Taxes, insurance premiums and commissions on real estate, and other investments		....	3,529.08
Transfer to Administrative budget of the National Research Council		....	62,809.59
Transfer to Retirement fund for investment		....	12,354.85
Balances June 30, 1944:			
Cash		1,635.43	42,512.17
Invested		11,189.40	100,345.00
Total		18,452.93	292,499.41

SCHEDULE B–1 (a).—*General expenses for the fiscal year ending June 30, 1944*

Treasurer's office:		
Auditor's fees	$250.00	
Bond of treasurer	25.00	
Miscellaneous expenses	123.66	
		$398.66
Home secretary's office:		
Executive secretary's salary	600.00	
Stationery and miscellaneous expenses	292.27	
Reference books	36.88	
Printing, multigraphing, and engraving	186.45	
Express and telegrams	65.88	
		1,181.48
Annual meeting	678.38	
Autumn meeting	364.12	
Election of members	994.34	
Memoirs, editorial	140.00	
Printing of Biographical Memoirs	781.00	
Current publications, preparation for distribution	133.94	
Postage, regular	141.51	
Contingent fund	210.06	
Library binding	261.09	
Expenses of members attending executive committee of Council of Academy	3.82	
		3,708.26
Total to schedule B–1		5,288.40

SCHEDULE B–1 (b).—*Maintenance of building and grounds—expenses for the fiscal year ending June 30, 1944*

Salaries, office of custodian of building and grounds	$9, 970. 78
Salaries, employees, building	30, 013. 64
Steam heating	2, 598. 90
Electricity	2, 883. 12
Gas	9. 00
Insurance	1, 124. 12
Maintenance of building and grounds	6, 216. 24
Total to schedule B–1	52, 815. 80

SCHEDULE B–2.—*Accounts with individual funds for the fiscal year ending June 30, 1944*

CURRENT RESTRICTED FUNDS

	Academy emergency grant	Academy emergency grant, Academy Government projects	Building site fund	Carnegie Corporation, special
Balances July 1, 1943:				
Cash	$54, 547. 28	$6, 589. 09	$480. 08	$7, 737. 55
Invested			8, 009. 40	
Receipts:				
Reimbursement by Government for overhead expenses	50, 672. 37	5, 998. 75		
National Research Council, refunds	39, 861. 34			
War Department		3, 557. 83		
Investment income			386. 30	
Total	145, 080. 99	16, 145. 67	8, 875. 78	7, 737. 55
Disbursements:				
Transfers to National Research Council	127, 800. 00			
Transfer to investment reserve fund			19. 31	
Transfer to fees to financial advisers			10. 18	
WBC committee		392. 95		
ABC committee		1. 974. 54		
Alterations to building [1]		2, 399. 20		
Extra guards, cleaners, and laborers [1]		7, 761. 72		
Travel expense, John Diener	95. 22			
Transfer to retirement fund				7, 737. 55
Miscellaneous			. 20	
Balances June 30, 1944:				
Cash	17, 185. 77	3, 617. 26	836. 69	
Invested			8, 009. 40	
Total	145, 060. 99	16, 145. 67	8, 875. 78	7, 737. 55

	Expenses fund for research	Federal tax withheld account	Fees to financial advisers	Hale lectureship
Balances July 1, 1943: Cash	$2, 230. 53	$337. 49		$385. 55
Receipts:				
Transfers from various funds		5, 514. 88	$4, 240. 84	
Transfer from national science fund	992. 00			
Total	3, 222. 53	5, 852. 37	4, 240. 84	385. 55
Disbursements:				
Fees and expenses of Horace S. Ford			4, 240. 84	
Salaries and all other expenses	3, 115. 33			
Collector of internal revenue		5, 447. 93		
Balances June 30, 1944: Cash	107. 20	404. 44		385. 55
Total	3, 222. 53	5, 852. 37	4, 240. 84	385. 55

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[1] In connection with partial occupancy of building by Government agencies.

SCHEDULE B-2.—*Accounts with individual funds for the fiscal year ending June 30 1944*—Continued.

CURRENT RESTRICTED FUNDS—Continued

	National Park problems	National Science fund	Academy Proceedings	Joint Proceedings
Balances July 1, 1943: Cash	$80.79	$8,527.12	$5,967.07	$9,073.18
Receipts:				
Contributions		13,450.00		
Sale of office furniture		141.00		
Annual dues			1,675.00	
Subscriptions				2,005.72
Reprints and separates			64.80	933.87
Transfer from Billings Fund			1,080.94	
Contributions by National Research Council				2,500.00
Transfer from Academy Proceedings representing contribution of National Academy of Sciences				2,500.00
Total	80.79	22,118.12	8,787.81	17,012.77
Disbursements:				
Purdue Research Foundation fellowship		750.00		
Adolph Nichtenhauser		400.00		
Alexander Lipshultz		2,000.00		
Incidental expenses		539.50		
Transfer to Expenses, fund for research		992.00		
Salary of managing editor				750.00
Printing and distribution				3,707.38
Expenses:				
Boston office				440.00
Washington office				245.75
Transfer to Joint Proceedings			2,500.00	
Balances June 30, 1944: Cash	80.79	17,436.62	6,287.81	11,869.64
Total	80.79	22,118.12	8,787.81	17,012.77

	Emergency fund Proceedings	Scientific publication fund	Special insurance fund
Balances July 1, 1943: Cash	$3,227.79	$1,761.06	$12,485.00
Receipts:			
Royalties		6.25	
Refunds			27.50
Total	3,227.79	1,767.31	12,512.50
Disbursements: Special insurance premiums			2,467.50
Balances June 30, 1944: Cash	3,227.79	1,767.31	10,045.00
Total	3,227.79	1,767.31	12,512.50

SCHEDULE B-3.—*Accounts with individual funds for the fiscal year ending June 30, 1944*

TRUST AND ENDOWMENT FUNDS

	Bache Fund, principal	Bache Fund, income	Billings Fund, income	Carnegie Endowment Fund, principal
Balances July 1, 1943:				
Cash	$248.10	$5,160.62		$683,812.44
Invested	59,751.90			2,866,187.56
Receipts: Investment income		3,324.68	$1,169.08	
Total	60,000.00	8,485.30	1,169.08	3,550,000.00
Disbursements:				
Grants		500.00		
Transfer to Investment reserve fund		167.00	58.45	
Transfer to Fees to financial advisers		74.64	29.69	
Transfer to Academy Proceedings			1,080.94	
Miscellaneous		.22		
Balances June 30, 1944:				
Cash	260.83	7,743.44		611,153.43
Invested	59,739.17			2,938,846.57
Total	60,000.00	8,485.30	1,169.08	3,550,000.00

Schedule B-3.—*Accounts with individual funds for the fiscal year ending June 30, 1944*—Continued

TRUST AND ENDOWMENT FUNDS—Continued

	John J. Carty Medal and Award Fund, income	Comstock Fund, principal	Comstock Fund, income	Consolidated fund, principal
Balances July 1, 1943:				
Cash	$981.21	$666.25	$5,281.38	$1,958.90
Invested		14,333.75	960.00	240,254.53
Receipts:				
Investment income	1,230.40		700.53	
Profit on sales of securities			308.00	
Transfer from Retirement fund, principal				44,649.40
Transfer from Joseph Henry Fund, principal				1,000.00
Total	2,211.61	15,000.00	7,249.91	287,862.83
Disbursements:				
Transfer to Investment reserve fund	61.52			
Transfer to Fees to financial advisers	31.38			
Accrued interest on purchase of bonds			13.45	
Miscellaneous			2.16	
Balances June 30, 1944:				
Cash	2,118.71	423.82	6,274.30	384.47
Invested		14,576.18	960.00	287,478.36
Total	2,211.61	15,000.00	7,249.91	287,862.83

	Consolidated fund, income	Draper Fund, income	Elliot Fund, income	Gibbs Fund, income
Balances July 1, 1943: Cash	$1,391.10	$962.68	$2,766.40	$3,875.30
Receipts: Investment income	13,776.14	492.42	393.53	272.76
Total	15,167.24	1,455.10	3,159.93	4,148.06
Disbursements:				
Distribution to various funds (schedule B-3 (a))	12,803.14			
Transfer to Investment reserve fund		24.62	19.67	13.64
Transfer to Fees to financial advisers		12.30	10.18	6.79
Medals			252.93	
Engrossing			25.00	
G. H. Parker, honorarium			100.00	
Accrued interest on purchase of bonds	1,376.97			
Miscellaneous	2.05			
Balances June 30, 1944: Cash	985.08	1,418.18	2,752.15	4,127.63
Total	15,167.24	1,455.10	3,159.93	4,148.06

	Gould Fund, principal	Gould Fund, income	Hartley Fund, income	Joseph Henry Fund, income
Balances July 1, 1943:				
Cash	$4.03	$3,150.95	$447.40	$2,406.82
Invested	19,995.97	9,747.65		
Receipts: Investment income		1,478.67	58.91	2,172.69
Total	20,000.00	14,377.27	506.31	4,579.51
Disbursements:				
Dirk Brouwer, grant		800.00		
L. T. Chen, grant				500.00
Hugh M. Rous, grant				500.00
Transfer from income to principal fund				1,000.00
Transfer to investment reserve fund		73.93	2.95	108.63
Transfer to fees to financial advisers		36.90	1.27	55.13
Travel expense			11.46	
Accrued interest on purchase of bonds		60.27		
Printing and engrossing			41.50	
Miscellaneous		.10	.57	
Balances June 30, 1944				
Cash	214.93	3,658.42	448.56	2,415.75
Invested	19,785.07	9,747.65		
Total	20,000.00	14,377.27	506.31	4,579.51

SCHEDULE B-3.—*Accounts with individual funds for the fiscal year ending June 30, 1944*—Continued

TRUST AND ENDOWMENT FUNDS—Continued

	Investment reserve fund	Marsh fund, income	Murray fund, income	Retirement fund, income
Balances July 1, 1943: Cash		$526.48	$790.87	
Receipts:				
Investment income		984.27	492.41	$883.82
Profit on sales of securities	$109,606.94			
Transfers from various funds	8,590.79			
Overdraft June 30, 1944	675,368.00			
Total	793,565.73	1,510.75	1,283.28	883.82
Disbursements:				
Loss on sales of securities	34,254.97			
Transfer to investment reserve fund		49.21	24.62	44.19
Transfer to fees to financial advisers		25.02	12.30	
Overdraft July 1, 1943	759,310.76			
Balances June 30, 1944: Cash		1,436.52	1,246.36	839.63
Total	793,565.73	1,510.75	1,283.28	883.82

	Smith Fund, income	Thompson Fund, income	Walcott Fund, income	Watson Fund, principal
Balances July 1, 1943:				
Cash	$5,117.25	$4,265.25	$843.80	$322.50
Invested	3,938.45			24,677.50
Receipts: Investment income	772.17	492.41	245.58	
Total	9,827.87	4,757.66	1,089.38	25,000.00
Disbursements:				
Medals		1,179.59		
Transfer to investment reserve fund	38.60	24.62	12.28	
Transfer to fees to financial advisers	17.38	12.30	6.36	
Accrued interest on purchase of bonds	82.51			
Miscellaneous	.10	1.60		
Balances June 30, 1944:				
Cash	2,264.81	3,539.55	1,070.74	688.75
Invested	7,424.47			24,311.25
Total	9,827.87	4,757.66	1,089.38	25,000.00

	Watson Fund, income
Balances July 1, 1943: Cash	$6,289.39
Receipts: Investment income	1,168.00
Total	7,457.39
Disbursements:	
Yale University grant	600.00
Accrued interest on purchase of bonds	87.61

	Watson Fund income
Disbursements—Continued	
Transfer to investment reserve fund	$58.40
Transfer to fees to financial advisers	30.95
Balances June 30, 1944: Cash	6,680.43
Total	7,457.39

SCHEDULE B-3(a).—*Consolidated fund as at June 30, 1944*

	Balances July 1, 1943	Increases	Balances June 30, 1944	Investment income distributed
Agassiz Fund	$50,000.00		$50,000.00	$2,460.24
Billings Fund	23,748.88		23,748.88	1,169.08
John J. Carty Medal and Award	25,000.00		25,000.00	1,230.40
Draper Fund	10,000.00		10,000.00	492.42
Elliot Fund	8,000.00		8,000.00	393.53
Gibbs Fund	5,545.50		5,545.50	272.76
Hartley Fund	1,200.00		1,200.00	58.91
Joseph Henry Fund	44,163.50	1,000.00	45,163.50	2,172.69
Marsh Fund	20,000.00		20,000.00	984.27
Murray Fund	10,000.00		10,000.00	492.41
Nealley Fund	19,555.55		19,555.55	962.21
Retirement Fund		44,649.40	44,649.40	883.82
Smith Fund	10,000.00		10,000.00	492.41
Thompson Fund	10,000.00		10,000.00	492.41
Walcott Fund	5,000.00		5,000.00	245.58
Total	242,213.43	45,649.40	287,862.83	12,803.14

SCHEDULE B-4.—*Trust and endowment funds as at June 30, 1944*

A. Principal of funds, the income from which may be used for general purposes:

Agassiz Fund: Bequest of Alexander Agassiz, a member of the Academy, 1910, for the general uses of the Academy $50,000.00

Carnegie Endowment Fund: By resolution voted March 28, 1919, and amended several times since, the Carnegie Corporation of New York pledged $5,000,000 to the National Academy of Sciences for the purposes of the Academy and the National Research Council, of which $1,450,000 was reserved and paid for the erection of a building, and the remainder, $3,550,000, to be capitalized at such times as the corporation finds convenient in view of its other obligations, the amount remaining in the hands of the corporation to bear interest at the rate of 5 percent per annum, 7 installments completing capitalization $3,550,000.00

Nealley Fund: Bequest of George True Nealley, 1925, for the general purposes of the Academy, $20,896.01, less refund November 1926, $1,500, to a creditor of the estate; supplemented by additional sum from the estate March 1931, $159.54 .... 19,555.55

B. Principal of funds, the income from which may be used for specifically designated purposes:

Bache fund: Bequest of Alexander Dallas Bache, a member of the Academy, 1870, to aid researches in physical and natural sciences 60,000.00

Billings Fund: Established by the bequest of Mrs. Mary Anna Palmer Draper (Mrs. Henry Draper) of $25,000, in 1915, to support the publication of the Proceedings of the Academy or for other purposes to be determined by the Academy, 8 installments 23,748.88

SCHEDULE B-4.—*Trust and endowment funds as at June 30, 1944*—Continued

B. Principal of funds, the income from which may be used for specifically designated purposes—Continued

John J. Carty Medal and Award for the advancement of science: Gift of American Telephone & Telegraph Co. November 13, 1930, in recognition of the distinguished achievements of John J. Carty as a scientist and engineer, and his noteworthy contributions to the advancement of fundamental and applied science, and in appreciation of his great services for many years in developing the art of electrical communication, and as a lasting testimonial of the love and esteem in which he is held by his many thousand associates in the Bell System; the income thereof to be used for a gold medal and award, not oftener than once in 2 years, by vote of the National Academy of Sciences, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the National Academy of Sciences	$25, 000. 00
Comstock Fund: Gift of Gen. Cyrus B. Comstock a member of the Academy, 1907, to promote researches in electricity, magnetism, or radiant energy through the Comstock prize money, to be awarded once in 5 years for notable investigations. The fund has been increased from $12,406.02 to $15,000 by profit from sale of bonds and by transfer from income to capital	15, 000. 00
Draper Fund: Gift of Mrs. Henry Draper, 1883, in memory of her husband, a former member of the Academy, to found the Henry Draper Medal, to be awarded for notable investigations in astronomical physics; the balance of income is applied to aid research in the same science	10, 000. 00
Elliot Fund: Gift of Margaret Henderson Elliot, to found the Daniel Giraud Elliot Gold Medal and Honorarium for the most meritorious work on zoology or paleontology published in each year	8, 000. 00
Gibbs Fund: Established by gift of Wolcott Gibbs, a member of the Academy, 1892, and increased by a bequest of the late Morris Loeb, 1914, for the promotion of researches in chemistry	5, 545. 50
Gould Fund: Gift of Miss Alice Bache Gould, 1897, in memory of her father, a former member of the Academy, for the promotion of researches in astronomy	20, 000. 00
Hartley Fund: A gift from Mrs. Helen Hartley Jenkins, 1913-14, in memory of her father, Marcellus Hartley, to found the medal of the Academy awarded for eminence in the application of science to public welfare	1, 200. 00
Joseph Henry Fund: The sum of $40,000 was contributed by Fairman Rogers, Joseph Patterson, George W. Childs, and others as an expression of their respect and esteem for Prof. Joseph Henry. This amount was deposited with the Pennsylvania Co. for Insurance of Lives and Granting Annuities in trust, with authorization to collect the income thereon and to pay over the same to Prof. Joseph Henry during his natural life, and after his death to his wife and daughters, and after the death of the last survivor to "deliver the said fund and the securities in which it shall then be invested to the National Academy of Sciences, to be thenceforward forever held in trust under the name and title of the 'Joseph Henry Fund.'" The death of Miss Caroline Henry on November 10, 1920, has removed the last surviving heir of Joseph Henry to the income of the Joseph Henry Fund. To assist meritorious investigators, especially in the direction of original research. Amount received by the Academy from the Pennsylvania Co. for Insurance of Lives and Granting Annuities, $39,739.57, to which was added the sum of $5,423.93 from income	45, 163. 50

SCHEDULE B-4.—*Trust and endowment funds as at June 30, 1944*—Continued

B. Principal of funds, the income from which may be used for specifically designated purposes—Continued	
Marsh Fund: Bequest of Othniel Charles Marsh, a member of the Academy, 1909, to promote original research in the natural sciences; to the original bequest of $10,000 the Academy has added interest received from the estate and has authorized the increase of the fund to $20,000 by annual additions from income	$20,000.00
Murray Fund: A gift from the late Sir John Murray, 1911, to found the Alexander Agassiz Gold Medal, in honor of a former member and president of the Academy, to be awarded for original contribution to the science of oceanography. To the original bequest of $6,000 the sum of $4,000 has been added by transfer from income to capital	10,000.00
Smith Fund: Gift of Mrs. J. Lawrence Smith, 1884, in memory of her husband, a former member of the Academy, to found the J. Lawrence Smith Gold Medal, to be awarded for important investigations of meteoric bodies and to assist, by grants of money, researches concerning such objects	10,000.00
Thompson Fund: Gift of Mrs. Mary Clark Thompson, 1919, the income thereof to be applied for a gold medal of appropriate design to be awarded annually by the Academy for the most important services to geology and paleontology, the medal to be known as the Mary Clark Thompson Gold Medal	10,000.00
Walcott Fund: Gift of Mrs. Mary Vaux Walcott, 1928, in honor of her husband, a former member and president of the Academy, the income to be used for the award of medals and honoraria to persons the results of whose published researches, explorations, and discoveries in pre-Cambrian or Cambrian life and history shall be judged most meritorious, the award to be made every five years, to be known as the Charles Doolittle Walcott Fund	5,000.00
Watson Fund: Bequest of James Craig Watson, a member of the Academy, 1874, for the promotion of astronomical science through the award of the Watson Gold Medal and grants of money in aid of research	25,000.00

EXHIBIT A

NATIONAL RESEARCH COUNCIL

Balance sheet as at June 30, 1944

ASSETS

Cash in bank—Washington		$587,461.33
Due from Bank of New York		352.09
Investments owned (schedule A-1):		
General maintenance fund	$136,318.97	
International Critical Tables	27,169.40	
		163,488.37
Income receivable:		
Rockefeller Foundation:		
Fellowships in the natural sciences (RF 39103) 1943	26,372.37	
Fellowships in medicine (RF 40056) 1943	31,763.05	
	58,135.42	
National Academy of Sciences: Overhead Reimbursement	70,000.00	
		128,135.42
Property account: Equipment (at cost)		66,027.44
Total assets		945,464.65

Balance sheet as at June 30, 1944—Continued

LIABILITIES

Fund balances (exhibit B):		
Current general funds	$104, 484. 82	
Current restricted funds	767, 567. 87	
		872, 052. 69
Investment reserve fund		7, 384. 52
Capital invested in property		66, 027. 44
Total liabilities		945, 464. 65

SCHEDULE A-1.—*Investments owned as at June 30, 1944*

	Face value or number of shares	Book value	Market value
GENERAL MAINTENANCE FUND			
Bonds:			
Atlantic Coast Line R. R. Co., 4½'s, 1964	$10, 000	$8, 775. 00	$8, 525. 00
Cleveland, Cincinnati, Chicago & St. Louis Ry., 4½'s, 1977	10, 000	9, 650. 00	7, 325. 00
Illinois Central R. R. Co., 4's, 1952	12, 000	8, 977. 50	9, 960. 00
Kingdom of Norway, 4¼'s, 1965	9, 000	9, 007. 50	8, 820. 00
Missouri Pacific R. R. Co. "H", 5's, 1980	6, 000	3, 540. 00	3, 275. 00
Southern Pacific Co. "A", 4½'s, 1977	5, 000	4, 221. 88	4, 212. 50
Southern Ry. Co., 4's, 1956	10, 000	8, 463. 61	8, 562. 00
U. S. Treasury, 2's, 1954	10, 000	10, 000. 00	10, 000. 00
		62, 635. 49	60, 679. 50
Stocks:			
Preferred:			
Crane Co., 5 percent cumulative	100	10, 457. 50	10, 800. 00
Goodyear Tire & Rubber Co. $5 convertible	70	7, 044. 95	7, 770. 00
Jones & Laughlin Steel Co. $5 cumulative	100	6, 553. 81	7, 000. 00
Common:			
Anaconda Copper Mining Co	100	2, 840. 00	2, 687. 50
Central Aguirre Associates	150	3, 228. 75	3, 225. 00
Commercial Credit Co	100	2, 243. 06	4, 200. 00
Commercial Investment Trust Corp	30	808. 26	1, 414. 00
Commonwealth Edison Co	200	4, 455. 00	5, 475. 00
Detroit Edison Co	100	1, 879. 66	2, 062. 50
Standard Oil Co. of New Jersey	100	4, 054. 30	5, 700. 00
Tybor Stores, Inc	150	75. 00	120. 00
		43, 640. 29	50, 454. 00
Real estate and mortgages:			
George W. Egbert, bond and mortgage	5, 043. 19	5, 043. 19	[1] 2, 750. 00
Real estate, 322-324 West 41st St., New York City	25, 000. 00	25, 000. 00	[1] 15, 000. 00
		30, 043. 19	17, 750. 00
Total general maintenance fund		136, 318. 97	128, 883. 50
INTERNATIONAL CRITICAL TABLES			
Bonds:			
Kingdom of Norway, 4¼'s, 1965	5, 000	5, 101. 25	4, 900. 00
New England Power Association, 5's, 1948	10, 000	10, 161. 25	10, 150. 00
Southern Pacific Co. "A", 4½'s, 1977	5, 000	4, 175. 00	4, 212. 50
		19, 437. 50	19, 262. 50
Stocks:			
Common:			
Anaconda Copper Mining Co	100	2, 840. 00	2, 687. 50
Central Aguirre Associates	50	1, 076. 25	1, 075. 00
Commercial Investment Trust Corp	70	1, 885. 93	3, 298. 00
Detroit Edison Co	100	1, 904. 72	2, 062. 50
Tybor Stores, Inc	50	25. 00	40. 00
		7, 731. 90	9, 163. 00
Total International Critical Tables		27, 169. 40	28, 425. 50
Grand total		163, 488. 37	157, 309. 00

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[1] Estimated.

EXHIBIT B

NATIONAL RESEARCH COUNCIL

Fund balances, increases and decreases for the period July 1, 1943, to June 30, 1944

	Balances, July 1, 1943	Increases		Decreases		Balances, June 30, 1944
		Cash receipts	Allotments transfers	Cash disbursements	Transfers reversions	
CURRENT GENERAL FUNDS						
Administrative budget accounts:						
General maintenance:						
Executive Board, 1944			$3, 900. 00	$2, 106. 47	$1, 438. 90	$354. 63
Publications and publicity, 1943	$817 56			800. 94	16. 62	
Publications and publicity, 1944			2, 300. 00	1, 186. 83	177. 83	935. 34
Reference library service, 1943	73. 83			64. 47	9. 36	
Reference library service, 1944			800. 00	573. 24	49. 76	177. 00
American Geophysical Union, 1944			400. 00	316. 46	. 50	83. 04
Divisions:						
Foreign Relations, 1944			300. 00		300. 00	
Physical Sciences, 1943	42. 54			42. 54		
Physical Sciences, 1944		$49. 01	1, 500. 00	551. 20	997. 81	
Engineering and Industrial Research, 1943	1, 620. 00			405. 99	1, 214. 01	
Engineering and Industrial Research, 1944		499. 20	3, 300. 00	2, 082. 72	1, 116. 48	600. 00
Chemistry and Chemical Technology, 1943	35. 02			35. 02		
Chemistry and Chemical Technology, 1944			1, 500. 00	578. 11	906. 89	15. 00
Geology and Geography, 1943	113. 40			109. 59	3. 81	
Geology and Geography, 1944		24. 15	1, 500. 00	963. 57	433. 58	127. 00
Medical Sciences, 1944			1, 000. 00	732. 69	267. 31	
Biology and Agriculture, 1944			1, 500. 00	1, 339. 10	128. 90	32. 00
Anthropology and Psychology, 1943	2. 51			2. 51		
Anthropology and Psychology, 1944			1, 500. 00	1, 060. 51	439. 49	
Expenses and supplies, 1943	858. 18			846. 31	11. 87	
Expenses and supplies, 1944		19, 748. 08	7, 000. 00	25, 825. 50	47. 41	875. 17
New equipment, general, 1943	1, 017 24			1, 015. 67	1. 57	
New equipment, general, 1944		2, 500. 00	3, 850. 00	5, 351. 14		998. 86
Salaries, 1943	34. 50			34. 50		
Salaries, 1944		300. 00	114, 332. 00	106, 474. 37	8, 157. 63	
Telephone and telegraph, 1943	1, 393. 06			1, 393. 06		
Telephone and telegraph, 1944		12, 339. 25	2, 400. 00	12, 533. 15		2, 206. 10
Auditor's fees, 1943			750. 00	550. 00	200. 00	
Attorney's fees, 1943	274. 00			274. 00		
Attorney's fees, 1944			2, 250. 00	578. 40	1, 586. 60	85. 00
National Academy Proceedings and subscriptions, 1944			2, 500. 00	2, 500. 00		
Retirement fund	20, 500. 00		4, 057. 00	24, 557. 00		
Contingent expenses, 1944		72. 97	6, 000. 00	2, 973. 77	3, 099. 20	
Unappropriated fund, general	51, 491. 34	10, 728. 22	18, 061 00		[1]17,715.12	97, 995. 68
Total current general funds	78, 273. 18	46, 260. 88	180, 700. 00	197, 858. 83	2, 890. 41	104, 484. 82
CURRENT RESTRICTED FUNDS						
Division of Physical Sciences:						
Revolving fund for publication of mathematical books	779. 61	102. 50				882. 11
Rotating fund, physics committees	5, 197. 11	1, 660. 07		2. 25		6, 854. 93
Washington Biophysical Institute	1, 136. 45			1, 136. 45		

[1] Indicates red figures .

Fund balances, increases and decreases for the period July 1, 1943, to June 30, 1944—Continued

	Balances, July 1, 1943	Increases		Decreases		Balances, June 30, 1944
		Cash receipts	Allotments transfers	Cash disbursements	Transfers reversions	
CURRENT RESTRICTED FUNDS—con.						
Division of Physical Sciences:						
Revolving fund for publication of mathematical tables	$13,840.10	$43.15		$800.00		$13,083.25
Committee on sound control in vehicles	14,990.18	3,341.83		18,332.01		
Journal of Mathematical Tables	520.74	2,116.50		2,151.31		485.93
Publication of Research in Biophysics accomplished under RF 37020		1,000.00				1,000.00
Division of Engineering and Industrial Research:						
Highway Research Board, 1943	4,912.11	1,666.67			$6,578.78	
Highway Research Board, 1944		29,524.81	$6,578.78	31,597.71		4,505.88
Heat transmission	373.75					373.75
Industrial Research Institute	7,596.58	14,855.23		10,571.22		11,880.59
Metallurgical advisory committee (OSRD)	18,320.87	159,607.07		152,496.17		25,431.77
Committee on concrete research	845.20	2,175.99		3,021.19		
War metallurgy committee (WPB)	23,476.10	92,478.79		90,850.89		25,104.00
Highway Research Board moving expenses	333.23	800.00		1,080.56		52.67
Quartermaster Corps problems	$5,000.00	$190,213.10	$11.73	$184,663.84		$10,560.99
Engineering Information Service		7,000.00		856.28		6,143.72
Mine field clearance project		2,691.08		691.08		2,000.00
Nonrigid pavement project		3,500.00		2,603.19		896.81
Division of Chemistry and Chemical Technology:						
Fellowship in protein chemistry	308.89			46.86		262.03
Committee on chemical data for ceramists	403.41	706.69		676.85		433.25
Committee on catalysis	335.50	40.00				375.50
NTM projects	25.33	674.67		700.00		
Division of Geology and Geography:						
Research fund, committee on sedimentation	1,116.47	65.15				1,181.62
Ore deposits as related to structural features		614.01		614.01		
Division of Medical Sciences:						
Sex research fund, 1943	3,041.97	88.66		3,130.63		
Sex research fund, 1944		52,616.80		45,362.56		7,254.24
Fellowships in medicine, 1943	34,139.70	325.00		2,994.81		31,469.89
Committee on endocrinology, 1943	10,811.51			10,811.51		
Committee on endocrinology, 1944		29,187.72		28,625.58		562.14
Fellowships in virus studies and orthopedics, 1941-42	38,820.53	711.83		14,646.87		24,885.49
Special medical committees, Carnegie Corp	7,835.18			2,268.54		5,566.64
War neurosis fund	307.90	192.10		500.00		
Expenses, committees on military medicine	1,463.91					1,463.91
Welch fellowships	3,176.51	9,640.91		9,880.75		2,936.67
Projects, committees on military medicine	6,167.06					6,167.06
Committees on military medicine, revolving fund	20,286.64	200,839.66	19.24	158,805.73		62,339.81
Committee on materials in medicine and surgery	4,042.76	22,008.35		14,915.46		11,135.65
Tropical medicine lectures	8,542.02	5,158.05		9,892.45		3,807.62
Military Medicine Information Service	13,316.22			13,316.22		
Tropical disease book fund	2,815.62			1,917.12		898.50
Medical food requirements	3,906.38	6,043.48		3,950.52		5,999.34
Manual of Industrial Hygiene		4,999.20		4,999.20		
War medical information		75,000.00		11,784.67		63,215.33
Lectures in pathology		5,500.00		814.62		4,685.38
Committee on medical records		5,000.00		2,508.78		2,491.22

Fund balances, increases and decreases for the period July 1, 1943, to June 30, 1944—Continued

	Balances, July 1, 1943	Increases		Decreases		Balances June 30, 1944
		Cash receipts	Allotments transfers	Cash disbursements	Transfers reversions	
CURRENT RESTRICTED FUNDS—con						
Division of Biology and Agriculture:						
Committee on animal nutrition	$9.85	$191.09				$200.94
National Live Stock and Meat Board fellowships	6,325.94	5.68		$3,682.71		2,648.91
Pharmaceutical researches	250.73					250.73
Committee on Human Heredity	5,809.03	1,972.26		4,134.39		3,646.90
Committee on aerobiology	1,464.18					1,464.18
Radiation bulletins	25.10					25.10
Committee on preservation of natural conditions	112.85					112.85
Food and Nutrition Board	3,125.18	46,681.40		42,165.49		7,641.09
Nutrition Foundation Fund	5,951.91	2,769.43		6,401.69		2,319.65
Committee on Food Composition	68.57	30,916.25		24,884.30		6,100.52
Milbank Memorial Fund	6,834.82	15,366.49		9,839.46		12,361.85
Committee on nutritional aspects of ageing	$5,808.05	$20,068.00		$22,834.19		$3,041.86
Office of executive secretary, Division of Biology and Agriculture	5,958.79			5,958.79		
Joint committee on forestry	1,954.92			1,337.55		617.37
Tropical Plant Research Fund		2,210.90	$2,000.00		$2.50	4,208.40
Division of Anthropology and Psychology:						
National intelligence tests, 1921	3,142.25	377.20		332.55		3,186.90
Child Development Abstracts	2,071.78	3,936.58		3,454.74		2,553.62
Directory of Anthropologists	122.69	24.55		122.69		24.55
Psychosomatic medicine	1,871.09	178.58		2,049.67		
Aircraft Pilots, 1941		820.20		820.20		
Aircraft Pilots, 1942	7,460.38	3,111.03		9,839.92		731.49
Aircraft Pilots, 1943	55,860.53	12,930.81		57,927.16		10,864.18
Aircraft Pilots, 1944		147,402.25		66,012.47		81,389.78
Improved personality tests	18.25					18.25
Psychological techniques for military service	726.85			118.49		608.36
Support, Division of Anthropology and Psychology	27.67					27.67
Committee on food habits	1,898.48	21,456.53		19,607.53		3,747.48
Perceptual investigations	150.00			150.00		
Publications, Psychosomatic Medicine	2,525.25	125.50		2,650.75		
Committee on service personnel, selection and training	22,153.86	96.79		20,948.39		1,302.26
Office of Psychological Personnel	1,505.11	10,306.32		10,192.58		1,618.85
Obesity and allergy in childhood		345.44				345.44
CAA—National Testing Service	1,998.98	2,393.08		4,392.06		
Milk in American culture		750.00		750.00		
Textbook in Military Psychology Fund	1,440.72	3,545.45		1,143.57		3,842.60
Inter-Society Convention of Psychologists	250.00			250.00		
CAA—War Training Service	1,179.01	3,778.09		2,845.66		2,111.44
Analysis of naval positions and tasks		10,000.00		9,700.00		300.00
Committee on applied psychology and the war		4,943.89		2,382.20		2,561.69
Executive Board:						
International Critical Tables	480.61	23.43	17,001.75	.61	17,126.26	378.92
International Critical Tables, capital funds	20,800.65		17,002.50		10,633.75	27,169.40
Royalty account, International Critical Tables		3,511.50			3,511.50	
Annual tables	14,422.48	5,606.82		7,485.87		12,543.43
Committee on scientific aids to learning: projects	55,937.36	10.17		17,400.00		38,547.53
Committee on passive protection against bombing	30,159.94	398.50		29,563.63		994.81
Food committees	139.12					139.12

Fund balances, increases and decreases for the period July 1, 1943, to June 30, 1944—Continued

	Balances, July 1, 1943	Increases		Decreases		Balances June 30, 1944
		Cash receipts	Allotments transfers	Cash disbursements	Transfers reversions	
CURRENT RESTRICTED FUNDS—con.						
Executive Board—Continued						
Subcommittee on individual hearing aids	$9, 110. 58			$2, 395. 93		$6, 714. 65
Subcommittee on group hearing aids	3, 152. 34					3, 152. 34
Committee on braking	4, 348. 01	$158. 08		4, 506. 09		
Advisory Office for Scientific and Technical Personnel	4, 097. 51	1, 213. 55		3, 897. 31		1, 413. 75
Ethnogeographic Board, joint fund	28, 342. 33	10, 000. 00		9, 455. 47		28, 886. 86
Central Purposes Fund, 1943	37, 127. 51				$37,127.51	
Central Purposes Fund, 1944		34, 117. 50	$37, 127. 51	9, 672. 38	15, 000. 00	46, 572. 63
Investigations on palmetto fiber	346. 03	153. 97				500. 00
Committee on war use of research facilities	$2, 252. 07			$2, 252. 07		
Victory tax withheld account	4, 373. 13	$42. 30		4, 415. 43		
Bibliographic service to Central and South America	21, 059. 01			5, 596. 18		$15, 462. 83
Survey of schools for osteopathy	1, 224. 77	4, 571. 78		2, 896. 62		2, 899. 93
Federal tax withheld account		67, 581. 66		61, 634. 13	30. 97	5, 916. 56
Fellowships in the natural sciences (RF 39103) 1943	56, 596. 59	55. 66		19, 401. 42		37, 250. 83
Committee on fortification design		100, 473. 99		89, 692. 90		10, 781. 09
Office for Scientific Personnel		15, 500. 00		13, 129. 15		2, 370. 85
Scientific and technical bibliography		2, 000. 00		1, 383. 64		616. 36
Problems of refrigeration	677. 37					677. 37
Impermanency of records	158. 11					158. 11
Acoustic properties of materials	1, 132. 69			116. 94		1, 015. 75
Thermal properties of liquids	1, 709. 13	24. 34		148. 86		1, 584. 61
Fire resistance of materials	179. 37	2, 400. 00		1, 785. 03		794. 34
Current meter investigations	126. 62					126. 62
Thermal investigations	2, 081. 88	450. 00		1, 104. 54		1, 427. 34
Ignition research	3, 247. 43	2, 890. 00		3, 694. 40		2, 443. 03
Acidity of citrus fruits	8. 44					8. 44
Motion picture projection equipment	1, 776. 70					1, 776. 70
Construction of high precision standards	2, 062. 09			455. 63		1, 606. 46
Experimental optical glass	400. 00			348. 18		51. 82
Investigations on stainless-steel sheets	3, 691. 83			3, 326. 00		365. 83
Investigation of high-strength reinforcement of concrete	5, 000. 00					5, 000. 00
Book fund, reference library service	1, 035. 15	1, 473. 37		551. 56		1, 956. 96
Total current restricted funds	723, 545. 21	1, 531, 549. 48	$79, 741. 51	1, 477, 257. 06	90, 011. 27	767, 567. 87
Total current funds	801, 818. 39	1, 577, 810. 36	260, 441. 51	1, 675, 115. 89	92, 901. 68	872, 052. 69
OTHER ACCOUNTS						
Income receivable, Rockefeller Foundation:						
Fellowships in medicine (RF 40056) 1943		3, 236. 95				
Fellowships in the natural sciences (RF 39103) 1943		21, 627. 63				
Income receivable, National Academy of Sciences:						
Carnegie Endowment Income Fund		62, 809. 59				
Overhead reimbursement		86, 000. 00				
Income from investments		3, 051. 12				
National Academy of Sciences, special: Return to Academy to close account				2, 000. 00		
Total other accounts		176, 725. 29		2, 000. 00		
Grand total, receipts and disbursements		1, 754, 535. 65		1, 677, 115. 89		

Fund balances, increases and decreases for the period July 1, 1943, to June 30, 1944—Continued

	Balances, July 1, 1943	Increases		Decreases		Balances, June 30, 1944
		Cash receipts	Allotments transfers	Cash disbursements	Transfers reversions	
CASH IN BANK						
Balances in Washington banks:						
July 1, 1943		$510,041.57				
June 30, 1944				$587,461.33		
Total		2,264,577.22		2,264,577.22		

SCHEDULE B-1.—*Statement of sources of income for the period July 1, 1943, to June 30, 1944*

CURRENT GENERAL FUNDS

Administrative budget accounts:		
General maintenance:		
Divisions:		
Physical sciences, 1944: Refund, Journal of Mathematical Tables		$49.01
Engineering and industrial research, 1944: Reimbursement, mine field clearance project		499.20
Geology and geography: Sales of reports and reprints		24.15
Expenses and supplies, 1944: Reimbursements by various committees for stationery, supplies, and stamps		19,748.08
New equipment, general, 1944: Transfer of funds from contingent expenses		2,500.00
Salaries, 1944: Transfer of funds from general maintenance, Division of Anthropology and Psychology, 1944		300.00
Telephone and telegraph, 1944: Reimbursements by various committees for telephone service, telegrams, etc		12,339.25
Contingent expenses, 1944: Refunds		72.97
Unappropriated fund, general:		
Sales of publications	$2,226.64	
Income from investments	3,775.65	
Royalties	135.20	
Refunds	586.84	
Reimbursements by various committees for services in the duplicating department	3,952.09	
Other receipts	51.80	
		10,728.22
Total current general funds		46,260.88

CURRENT RESTRICTED FUNDS

Revolving fund for publication of mathematical books: Royalties		102.50
Rotating fund, physics committees:		
Royalties	$787.23	
Sales of publications	872.84	
		1,660.07
Revolving fund for publication of mathematical tables: Sales of publications		43.15
Committee on sound control in vehicles: Office of Scientific Research and Development		3,341.83
Journal of Mathematical Tables:		
Subscriptions	$1,016.50	
Transfer from revolving fund for publication of mathematical tables	800.00	
Transfer from general maintenance, Division of Physical Sciences	300.00	
		2,116.50

SCHEDULE B-1.—*Statement of sources of income for the period July 1, 1943, to June 30, 1944*—Continued

CURRENT RESTRICTED FUNDS—continued

Publication of Research in Biophysics, accomplished under RF 37020: Grant, Rockefeller Foundation		$1,000.00
Highway Research Board, 1943: Public Roads Administration		1,666.67
Highway Research Board, 1944:		
Dues	$5,818.24	
Sales of publications	4,825.48	
Public Roads Administration	16,666.66	
Calcium Chloride Association	1,500.00	
Asphalt Institute	138.43	
National Slag Association	50.00	
Transfer from nonrigid pavement project	525.00	
Other	1.00	
		29,524.81
Industrial Research Institute:		
Dues	$14,854.23	
Refunds	1.00	
		14,855.23
Metallurgical Advisory Committee (OSRD):		
National Academy of Sciences	$10,000.00	
Office of Scientific Research and Development	149,585.78	
Refunds	21.29	
		159,607.07
Committee on Concrete Research:		
Office of Scientific Research and Development		2,175.99
War Metallurgy Committee (WPB):		
War Production Board	$90,600.00	
Transfer from Committee on War Use of Research Facilities	1,780.60	
Refunds and reimbursements	98.19	
		92,478.79
Highway Research Board moving expenses: National Academy of Sciences		800.00
Quartermaster Corps problems:		
Office of Scientific Research and Development	$190,171.50	
Refunds	41.60	
		190,213.10
Engineering Information Service: Coordinator of Inter-American Affairs		7,000.00
Mine field clearance project:		
National Academy of Sciences	$2,000.00	
War Department	691.08	
		2,691.08
Nonrigid pavement project: Asphalt Institute		3,500.00
(NOTE.—15 percent, or $525, of the above contribution was transferred to Highway Research Board, 1944.)		
Committee on Chemical Data for Ceramists: Sales of bulletins		706.69
Committee on catalysis: Royalties		40.00
NTM project: Office of Scientific Research and Development		674.67
Research fund, committee on sedimentation:		
Royalties	$43.20	
Sales of reports	21.95	
		65.15
Ore deposits as related to structural features: Royalties		614.01
Sex research fund, 1943: Refunds		88.66
Sex research fund, 1944: Grant, Rockefeller Foundation		52,616.80
Fellowships in medicine, 1943: Refunds		325.00
Committee on endocrinology, 1944:		
Grant, John and Mary R. Markle Foundation	$27,873.55	
Refunds	1,314.17	
		29,187.72
Fellowships in virus studies and orthopedics, 1941–42: Refunds		711.83
War neurosis fund: Reimbursement		192.10
Welch fellowships: Grant, Rockefeller Foundation		9,640.91

SCHEDULE B-1.—*Statement of sources of income for the period July 1, 1943, to June 30, 1944*—Continued

CURRENT RESTRICTED FUNDS—continued

Committees on military medicine, revolving fund:		
Office of Scientific Research and Development	$200, 225. 15	
Refunds	614. 51	
		$200, 839. 66
Committee on materials in medicine and surgery:		
War Production Board		22, 008. 35
Tropical medicine lectures:		
Grant, John and Mary R. Markle Foundation	$5, 000. 00	
Refund	158. 05	
		5, 158. 05
Medical food requirements: Department of Agriculture		6, 043. 48
Manual of Industrial Hygiene: Federal Security Agency		4, 999. 20
War medical information:		
Contribution, Johnson & Johnson Research Foundation		75, 000. 00
Lectures in pathology: Grant, Josiah Macy, Jr. Foundation		5, 500. 00
Committee on medical records: Grant, John and Mary R. Markle Foundation		5, 000. 00
Committee on animal nutrition: Sales of bulletins		191. 09
National Live Stock and Meat Board fellowships: Refunds		5. 68
Committee on human heredity:		
Grant, Carnegie Corporation of New York	$1, 950. 00	
Refunds	22. 26	
		1, 972. 26
Food and Nutrition Board:		
Department of Agriculture	45, 379. 44	
Sales of reports	100. 00	
Refunds and reimbursements	1, 201. 96	
		46, 681. 40
Nutrition foundation fund:		
Sales of bulletins	312. 18	
Refunds and reimbursements	2, 457. 25	
		2, 769. 43
Committee on food composition:		
War Department	25, 914. 27	
National Academy of Sciences	2, 000. 00	
Transfer from Milbank Memorial Fund	3, 000. 00	
Refunds	1. 98	
		30, 916. 25
Milbank Memorial Fund:		
Refunds of advances to committee on nutritional aspects of aging	10, 366. 49	
Milbank Memorial Fund	5, 000. 00	
		15, 366. 49
Committee on nutritional aspects of ageing:		
Grant, Josiah Macy, Jr. Foundation	14, 000. 00	
Transfer from Milbank Memorial Fund	6, 000. 00	
Refunds	68. 00	
		20, 068. 00
Tropical plant research fund:		
Gift, tropical plant research foundation	1, 063. 73	
Sales of securities	997. 77	
Interest on securities	149. 40	
		2, 210. 90
National intelligence tests, 1921: Royalties		377. 20
Child Development Abstracts: Subscriptions		3, 936. 58
Directory of Anthropologists: Sales of publications		24. 55
Psychosomatic Medicine: Sales of publications		178. 58
Aircraft Pilots, 1941: Refunds		820. 20
Aircraft Pilots, 1942:		
Navy Department	4. 83	
Refund of advance to CAA, National Testing Service	2, 000. 00	
Refunds	1, 106. 20	
		3, 111. 03

SCHEDULE B-1.—*Statement of sources of income for the period July 1, 1943, to June 30, 1944*—Continued

CURRENT RESTRICTED FUNDS—continued

Aircraft Pilots, 1943:		
Civil Aeronautics Administration	$11,000.00	
Transfer from Aircraft Pilots, 1942	1,820.18	
Refunds	110.63	
		$12,930.81
Aircraft Pilots, 1944:		
Civil Aeronautics Administration	122,083.30	
Contribution, University of Tennessee	25,000.00	
Refunds	318.95	
		147,402.25
Committee on food habits:		
Department of Agriculture	21,441.08	
Sales of publications	15.45	
		21,456.53
Publications, Psychosomatic Medicine: Sales of publications		125.50
Committee on Service Personnel, selection and training: Refunds		96.79
Office of Psychological Personnel:		
American Psychological Association	$10,281.32	
Society for Psychological Study of Social Issues	25.00	
		10,306.32
Obesity and Allergy in Childhood: Refunds		345.44
CAA, National Testing Service: Civil Aeronautics Administration		2,393.08
Milk in American Culture: Evaporated Milk Association		750.00
Textbook in Military Psychology: Royalties		3,545.45
CAA, War Training Service: Civil Aeronautics Administration		3,778.09
Analysis of Naval Positions and Tasks: National Academy of Sciences		10,000.00
Committee on applied psychology and the war:		
Transfer from committee on service personnel—Selection and Training	$2,943.89	
Office of Scientific Research and Development	2,000.00	
		4,943.89
International Critical Tables: Income from investments		23.43
Royalty account, International Critical Tables: Royalties		3,511.50
Annual tables:		
General Electric Co	$500.00	
The Martin Service Co	100.00	
Bausch & Lomb Optical Co	50.00	
Royalties	134.22	
Subscriptions	1,822.60	
Grant, Carnegie Institution of Washington	3,000.00	
		5,606.82
Committee on scientific aids to learning, projects: Refund		10.17
Committee on passive protection against bombing:		
War Department	$198.50	
Refunds	200.00	
		398.50
Committee on braking: Office of Scientific Research and Development		158.08
Advisory Office for Scientific and Technical Personnel:		
Office of Scientific Research and Development	$1,169.74	
Refunds	43.81	
		1,213.55
Ethnogeographic Board, joint fund:		
Grant, Rockefeller Foundation		10,000.00
Central purposes fund, 1944:		
Grant, Rockefeller Foundation	$32,500.00	
Transfers from various committees	1,617.50	
		34,117.50
Investigations on palmetto fiber:		
Transfer from committee on war use of research facilities		153.97

SCHEDULE B-1.—*Statement of sources of income for the period July 1, 1943, to June 30, 1944*—Continued

CURRENT RESTRICTED FUNDS—continued

Victory tax withheld account:		
Federal tax withheld from employees of various committees		$42. 30
Survey of schools for osteopathy:		
Department of Labor	$4, 489. 06	
Refunds	82. 72	
		4, 571. 78
Federal tax withheld account: Federal tax withheld from salaries of employees of various committees		67, 581. 66
Committee on fortification design:		
War Department	$86, 447. 47	
National Academy of Sciences	14, 000. 00	
Refunds	26. 52	
		100, 473. 99
Office for Scientific Personnel:		
National Academy of Sciences	3, 000. 00	
American Mathematical Society	1, 500. 00	
United Engineering Trustees, Inc	2, 000. 00	
Geological Society of America	3, 000. 00	
Institute of Physics	3, 000. 00	
Engineering Foundation Board	3, 000. 00	
		15, 500. 00
Scientific and technical bibliography: Book Publishers' Bureau, Inc		2, 000. 00
Fellowships in the natural sciences (RF 39103) 1943: Refunds		55. 66
Thermal properties of liquids: Refunds		24. 34
Fire resistance of materials:		
Metal Lath Manufacturing Association	$500. 00	
Gypsum Association	450. 00	
W. E. Drum Manufacturing Co	800. 00	
Lith-I-Bar Co	400. 00	
Johns-Mansville Co	250. 00	
		2, 400. 00
Thermal investigations:		
Staynen Filter Co	300. 00	
Air Devices, Inc	150. 00	
		450. 00
Ignition research:		
Firestone Tire & Rubber Co	2, 750. 00	
Square Deal Co	70. 00	
Cutler-Hammer, Inc	70. 00	
		2, 890. 00
Book fund, reference library service: Interest and dividends on securities owned by International Critical Tables		1, 473. 37
Total current restricted funds		1, 531, 549. 48

OTHER ACCOUNTS

Income receivable, Rockefeller Foundation:	
Fellowships in medicine (RF 40056) 1943	3, 236. 95
Fellowships in the natural sciences (RF 39103) 1943	21, 627. 63
Income receivable, National Academy of Sciences:	
Carnegie Endowment income fund	62, 809. 59
Overhead reimbursement	86, 000. 00
Income from investments	3, 051. 12
Total other accounts	176, 725. 29
Grand total receipts to exhibit B	1, 754, 535. 65

Report of the Auditing Committee

Dr. Frank B. Jewett, October 25, 1944.
President, National Academy of Sciences,
Washington, D. C.

Dear President Jewett: Following recent practice authorized by section 5, article V, of the bylaws of the National Academy of Sciences, the auditing committee engaged the services of a certified public accountant, William L. Yaeger, to prepare a detailed audit of the treasurer's accounts. After a systematic examination of the accounts of the treasurer of the Academy and of the National Research Council and of all securities, Mr. Yaeger submitted a report of his findings, with exhibits attached. The report covers all of the requirements in the bylaws cited above, which are as follows:

"5. The accounts of the treasurer shall, between July 1 and August 1 of each year be audited * * * It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and the custodian of securities and to compare the stated income of such securities with the receipts of record; to examine all vouchers covering disbursements for account of the Academy, including the National Research Council, and the authority therefor, and to compare them with the treasurer's record of expenditures; to examine and verify the account of the Academy with each trust fund. * * *"

The committee accepts the report of the accountant that the accounts of the treasurer correctly set forth the financial condition of the National Academy of Sciences and the National Research Council and constitute an accurate statement of financial operations for the fiscal year 1944.

The audit shows that on July 1, 1943, the debit balance in the investment reserve fund of the Academy, heretofore created to provide for losses that might occur in the sales of securities, was $759,310.76. On June 30, 1944, this debit balance was $675,368—a net decrease during the year of $83,942.76.

The market value of securities owned as of June 30, 1943, was $3,367,845.65, and is shown as of June 30, 1944, as $3,751,857.98—an increase of $384,012.33.

The total income of the Academy from investments during the preceding year was $167,275.73, whereas the income from the same sources during the year ending June 30, 1944, was $173,430.03—an increase of $6,154.30.

Very truly yours,

Arthur L. Day,
John R. Swanton,
W. C. Mendenhall, *Chairman.*

APPENDIX A

NATIONAL ACADEMY OF SCIENCE

1. CONSTITUTION

[As amended and adopted Apr. 17, 1872, and further amended Apr. 20, 1875; Apr. 21, 1881; Apr. 19, 1882; Apr. 18, 1883; Apr. 19, 1888; Apr. 18, 1895; Apr. 20, 1899; Apr. 17, 1902; Apr. 18, 1906; Nov. 20, 1906; Apr. 17, 1907; Nov. 20, 1907; Apr. 20, 1911; Apr. 16, 1912; Apr. 21, 1915; Nov. 11, 1924; Nov. 9, 1925; Oct. 18, 1927; Nov. 18, 1929; Sept. 18, 1930; Apr. 24, 1933; Apr. 27, 1936; Apr. 28, 1937; Apr. 22, 1940; Oct. 26, 1942]

PREAMBLE

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States, on the 3d day of March A. D. 1863, and in conformity with amendments to said act approved July 14, 1870, June 20, 1884, and May 27, 1914, the National Academy of Sciences adopts the following amended constitution and bylaws:

ARTICLE I.—OF MEMBERS

SECTION 1. The Academy shall consist of members, members emeriti, and foreign associates. Members must be citizens of the United States.

SEC. 2. Members who, from age or inability to attend the meetings of the Academy, wish to resign the duties of active membership may, at their own request, be transferred to the roll of members emeriti by a vote of the Academy.

SEC. 3. The Academy may elect 50 foreign associates.

SEC. 4. Members emeriti and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the Academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the Academy.

ARTICLE II.—OF THE OFFICERS

SECTION 1. The officers of the Academy shall be a president, a vice president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of 4 years, by a majority of votes present, at the annual meeting of the year in which the current terms expire. The date of expiration of the terms of office shall be June 30. In case of a vacancy the election shall be held in the same manner at the meeting when such vacancy occurs or at the next stated meeting thereafter, as the Academy may direct, and shall be for a term expiring on June 30 of the fourth year after that in which the election takes place. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the Academy until the next stated meeting of the Academy.

COUNCIL

SEC. 2. The officers of the Academy, together with six members to be elected by the Academy, and the chief executive officer of the National Research Council (provided he be a member of the Academy) shall constitute a Council for the transaction of such business as may be assigned to them by the constitution or the Academy.

EXECUTIVE COMMITTEE

SEC. 3. There shall be an executive committee of the Council of the Academy, composed of seven members, consisting of the president and vice president of the Academy, the chief executive officer of the National Research Council (provided he be a member of the Academy), the home secretary of the Academy, the treasurer of the Academy, and additional members of the Council of the Academy appointed by the president.

Their terms as members of the executive committee shall be coterminous with the term of their other office.

Except those powers dealing with nominations to membership in the Academy, the executive committee between the meetings of the Council shall have all the powers of the Council of the Academy, unless otherwise ordered by the Council.

The members of the executive committee of the Academy shall by virtue of their office be members of the executive board of the National Research Council and shall represent the Academy at all its meetings.

The president and home secretary of the Academy shall, respectively, be chairman and secretary of the executive committee.

In the absence of the president and the vice president or home secretary, the executive committee may select from among its members a chairman or a secretary pro tem.

The executive committee shall keep regular minutes and shall report all of its proceedings to the Council of the Academy for their information.

Unless otherwise ordered by the Council of the Academy or the executive committee, the executive committee shall meet once in each calendar month, and a special meeting may be called at any time by authority of the chairman, on reasonable notice.

Four members of the executive committee shall constitute a quorum. Letter ballots shall not be valid unless ratified at a meeting.

CUSTODIAN OF BUILDINGS AND GROUNDS

SEC. 4. On recommendation of the president, the Council of the Academy shall appoint a custodian of buildings and grounds, who, except where otherwise provided in the constitution and bylaws, shall have custody of all buildings, grounds, furniture, and other physical property belonging to the National Academy of Sciences or the National Research Council, or entrusted to their care.

He shall be responsible for and shall manage and administer these under such generic rules as the Council of the Academy may make and shall approve all vouchers for pay rolls and disbursements that come under authorized budget items or are specifically authorized by the Council of the Academy for the maintenance and operation of the Academy's and the Research Council's physical property.

He shall hold office at the pleasure of the Council of the Academy and shall receive such salary as it may agree and shall give such bond for the faithful performance of his duties as it may require.

He shall prepare and present to the finance committee of the Academy the buildings and grounds division of the general budget.

ADVISORY COMMITTEE ON BUILDINGS AND GROUNDS

He shall be chairman of a joint advisory committee of five on buildings and grounds, of which two members shall be appointed by the president of the Academy from the Academy Council, and two from the executive board of the National Research Council, which committee shall decide, subject to the approval of the Council of the Academy, all questions of allocation of space and use of public rooms.

FINANCE COMMITTEE

Sec. 5. There shall be a finance committee, of which the treasurer shall be chairman, consisting of the president of the Academy (or in his absence the vice president), the treasurer, the chief executive officer of the National Research Council (provided he be a member of the Academy), and two or three other members of the Academy appointed by the president, one of whom shall be a member of the executive board of the National Research Council.

It shall be the duty of the finance committee to provide for the safe custody of all financial resources of the Academy and to determine all matters relating to the purchase and sale of its securities.

It shall be the further duty of the finance committee to prepare and present to the Council of the Academy for adoption the "general budget," made up of the three "divisional budgets," of the Academy proper, of the Research Council, and of buildings and grounds, which divisional budgets shall be presented to the finance committee, respectively, by the treasurer, the chief executive officer of the National Research Council, and the custodian of buildings and grounds.

The finance committee shall be empowered to employ competent investment counsel (hereinafter called the financial advisor) to advise with the committee upon the purchase and sale of all securities, mortgages, or other investments.

PRESIDENT

Sec. 6. The president of the Academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the Academy, of the Academy Council, and of the executive board of the National Research Council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members or other persons especially conversant with the subjects, and report thereon to the Academy at its meeting next ensuing; and, with the Council, shall direct the general business of the Academy.

GOVERNMENT REQUESTS

The president shall be ex officio a member of all committees empowered to consider questions referred to the Academy by the Government of the United States.

SECRETARIES

SEC. 7. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and Council in cases of doubt, and reporting their action to the Academy at one of the stated meetings in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

It shall be the duty of the home secretary to keep the minutes of each business and scientific session, and after approval to enter these upon the permanent records of the Academy.

TREASURER

SEC. 8. The treasurer shall attend to all receipts and disbursements of the Academy, giving such bond and furnishing such vouchers as the Council may require. He shall collect all dues, assessments, and subscriptions, and keep a set of books showing a full account of receipts and disbursements and the condition of all funds of the Academy. He shall be the custodian of the corporate seal of the Academy.

ADMINISTRATIVE COMMITTEE, NATIONAL RESEARCH COUNCIL

SEC. 9. The president, vice president, home secretary, and treasurer shall be members of the administrative committee of the National Research Council and shall represent the Academy at all its meetings.

ARTICLE III.—OF THE MEETINGS

ACADEMY

SECTION 1. The Academy shall hold one stated meeting, called the annual meeting, in April of each year in the city of Washington, and another stated meeting, called the autumn meeting, at a place to be determined by the Council. The Council shall also have power to fix the date of each meeting.

Special business meetings of the Academy may be called, by order of eight members of the Council, at such place and time as may be designated in the call.

Special scientific meetings of the Academy may be held at times and places to be designated by a majority of the Council.

SEC. 2. The names of the members present at each session of a meeting shall be recorded in the minutes, and 20 members shall constitute a quorum for the transaction of business.

SEC. 3. Scientific sessions of the Academy, unless otherwise ordered by a majority of the members present, shall be open to the public; sessions for the transaction of business shall be closed.

CONSTITUTION OF THE ACADEMY

SEC. 4. Stated meetings of the Council shall be held during the stated or special meetings of the Academy, and four members shall constitute a quorum for the transaction of business. Special meetings of the Council may be convened at the call of the president and two members of the Council or of four members of the Council.

DUES IN ARREARS

SEC. 5. No member whose dues are in arrears shall vote at any business meeting of the Academy.

ARTICLE IV.—OF ELECTIONS AND REGULATIONS

SECTION 1. All elections of officers and members shall be by ballot, and each election shall be held separately.

SEC. 2. The time for holding an election of officers shall be fixed by the Academy at least 1 day before the election is held.

COUNCIL OF THE ACADEMY

SEC. 3. The election of six members of the Council shall be as follows:

At the annual meeting in April 1907, six members of the Council to be elected, of whom two shall serve for 3 years, two for 2 years, and two for 1 year, their respective terms to be determined by lot. Each year thereafter the terms of two members shall expire and their successors, to serve for 3 years, shall be elected at the annual meeting in each year. The date of expiration of the terms shall be June 30.

SECTIONS

SEC. 4. The Academy shall be divided by the Council into sections representing the principal branches of scientific research. Each section shall elect its own chairman to serve for 3 years. The chairman shall be responsible to the Academy for the work of his section.

ADVISORY COMMITTEE ON MEMBERSHIP

To provide that the Academy shall be more adequately representative of the potential scientific effort of the country and better able to discharge its obligations to Government, the Council of the Academy, acting with the chairmen of the sections, shall be an advisory committee on membership which shall recommend numbers of new members to the various sections. The numbers thus recommended to a section are to be for 3 years in advance. The advisory committee on membership may organize temporary nominating groups either by subdividing a present section into two or more groups or by forming new intersectional or extrasectional groups to which numbers of new members may be assigned. Such temporary nominating groups may then nominate new members in accordance with the rules laid down for sections.

NOMINATIONS

Nominations to membership in the Academy shall be made in writing and approved by two-thirds of the members voting in a section on the branch of research in which the person nominated is eminent, or by a majority of the Council, or by a majority (however distributed) of the members voting in any two sections. The nomination shall be sent to the home secretary by the chairman of the section before January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the Academy.

ELECTION PROCEDURE

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which must be transmitted to the home secretary at least two weeks in advance of the annual meeting, and a final ballot, to be taken at the meeting.

PREFERENCE BALLOT

Preference ballot.—From the list of nominees submitted by the home secretary, each member shall select and inscribe on a ballot, to an extent not greater than one-half nor less than one-third the list, those names which he prefers, as these limits shall be interpreted by the home secretary in his discretion, and announced by him, no weight being attached to the order of the names, and ballots not complying with these requirements being discarded. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

After the preference list has been made up in the manner stated, the President, acting for the Council, may request permission to advance one or more nominees to a higher place on grounds of the general interests of the Academy. If a majority of the members of the Academy present favor such an advance it shall be made. The chairman of any section having two or more nominees on the list may, when its first nominee is reached, request the permission of the Academy to interchange the positions (on the preference list) of the nominees of his section, without altering in any way the positions of nominees from other sections. If a majority of the members of the Academy present favor permitting a section to make such interchange of its own nominees, it shall be done before proceeding further with the election.

FINAL BALLOT

A vote shall be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receives two-thirds of the votes cast and not less than 30 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until 30 nominees shall have been elected, or until the total membership of the Academy shall have reached 450, or until the Academy shall terminate the election by vote as provided below. In voting the final ballot, members shall inscribe on the ballot the name of the nominee with either "*yes*" or "*no*" or "*blank*", and only ballots thus inscribed shall be counted. Members appointed as tellers must vote before counting the ballots.

If, however, a nominee receives a majority of the votes of those members voting in the preference ballot he may be declared elected by a two-thirds voice vote.

ELECTION

Not more than 30 members shall be elected at one annual meeting.

It shall be in order at any point in the course of an election to move that the election be closed. If two-thirds of those present vote in favor of such motion, it shall prevail, and the election shall thereupon terminate.

Before and during elections a discussion of the merits of nominees will be in order.

SEC. 6. Every member elected shall accept his membership, personally or in writing, before the close of the next stated meeting after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

FOREIGN ASSOCIATES

SEC. 7. Foreign associates may be nominated by the Council and may be elected at the annual meeting by a two-thirds vote of the members present.

CERTIFICATES OF ELECTION

SEC. 8. A diploma, with the corporate seal of the Academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of membership and to foreign associates on their election.

RESIGNATIONS

SEC. 9. Resignations shall be addressed to the president and acted on by the Academy.

DUES, NONPAYMENT

SEC. 10. Whenever a member has not paid his dues for 4 successive years, the treasurer shall report the fact to the Council, which may report the case to the Academy with the recommendation that the person thus in arrears be declared to have forfeited his membership. If this recommendation be approved by two-thirds of the members present, the said person shall no longer be a member of the Academy, and his name shall be dropped from the roll.

ARTICLE V.—OF SCIENTIFIC COMMUNICATIONS, PUBLICATIONS, AND REPORTS

SCIENTIFIC SESSIONS

SECTION 1. Communications on scientific subjects shall be read at scientific sessions of the Academy, and papers by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

SEC. 2. Any member of the Academy may read a paper from a person who is not a member and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the Council or of the committee on arrangements, or on recommendation by an Academy member and approval by the committee on arrangements.

PUBLICATIONS

SEC. 3. The Academy may provide for the publication, under the direction of the Council, of Proceedings, scientific Memoirs, Biographical Memoirs, and Reports.

PROCEEDINGS

The Proceedings shall be primarily a medium of first publication for original articles, in brief form, of permanent scientific value.

MEMOIRS

The scientific Memoirs shall provide opportunity for the publication of longer and more detailed scientific investigations.

The Biographical Memoirs shall contain an appropriate record of the life and work of the deceased members of the Academy.

ANNUAL REPORT

An annual report shall be presented to Congress by the president and shall contain the annual reports of the treasurer and the auditing committee, a suitable summary of the reports of the committees in charge of trust funds, and a record of the activities of the Academy for the fiscal year immediately preceding, and other appropriate matter. This report shall be presented to Congress by the president after authorization by the Council. It shall also be presented to the Academy at the annual meeting next following.

TREASURER'S REPORT

The treasurer shall prepare a full report of the financial affairs of the Academy at the end of the fiscal year. This report shall be submitted to the Council for approval and afterward presented to the Academy at the next stated meeting. He shall also prepare a supplementary financial statement to December 31 of the ensuing fiscal year for presentation at the annual meeting.

GOVERNMENT REQUESTS

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the Council for approval, except those requested by the Government of the United States which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained.

ARTICLE VI.—OF TRUST FUNDS AND THEIR ADMINISTRATION

TRUSTS

SECTION 1. Devises, bequests, donations, or gifts having for their object the promotion of science or the welfare of the Academy may be accepted by the Council for the Academy. Before the acceptance of any such trust the Council shall consider the object of the trust and all conditions or specifications attaching thereto. The Council shall make a report of its action to the Academy.

MEDALS

SEC. 2. Medals and prizes may be established in accordance with the provisions of trusts or by action of the Academy.

TRUST FUND COMMITTEES

SEC. 3. Unless otherwise provided by the deed of gift, the income of each trust fund shall be applied to the objects of that trust by the action of the Academy on the recommendation of a standing committee on that fund.

ARTICLE VII.—OF ADDITIONS AND AMENDMENTS

Additions and amendments to the constitution shall be made only at a stated meeting of the Academy. Notice of a proposition for such a change must be submitted to the Council, which may amend the proposition and shall report thereon to the Academy. Its report shall be considered by the Academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated meeting, and if it receives two-thirds of the votes cast it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted, as if the members were present.

2. BYLAWS[1]

[In accordance with a resolution of the Academy, taken at its meeting on April 21, 1915, the bylaws are arranged in groups, and each group is numbered to correspond with the article of the constitution to which it relates]

I

1. The holders of the medal for eminence in the application of science to the public welfare shall be notified, like members, of the meetings of the Academy and invited to participate in its scientific sessions.

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[1] The amendment adopted April 23, 1945, is incorporated in the bylaws as printed herein.

2. A foreign associate of the Academy who becomes a citizen of the United States shall have all the privileges and duties of a member of the Academy unless he shall request otherwise, and shall be included in the list of members in the section of his choice.

II

1. The proper secretary shall acknowledge all donations made to the Academy and shall at once report them to the Council for its consideration.

2. The home secretary shall keep a record of all grants of money or awards of prizes or medals made from trust funds of the Academy. The record for each grant of money shall include the following items: Name of fund, date and number of the grant, name and address of recipient, amount of grant, and date or dates of payment, purpose of grant, record of report of progress, and resulting publications.

3. The executive secretary, who may be a nonmember of the Academy, shall receive a salary to be fixed by the Council.

4. The treasurer shall keep the home secretary informed of all warrants received from directors of trust funds not controlled by the Academy and of the date or dates of payment of all warrants.

GOVERNMENT REQUESTS

5. The treasurer is authorized to defray, when approved by the president, all the proper expenses of committees appointed to make scientific investigations at the request of departments of the Government, and in each case to look to the department requesting the investigation for reimbursement to the Academy.

TREASURER, NATIONAL RESEARCH COUNCIL

6. The treasurer is authorized to act as the treasurer ex officio of the National Research Council.

BURSAR

7. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee and be directly responsible to the treasurer.

INVESTMENTS

8. All investments and reinvestments of either principal or accumulations of income of the trust and other funds of the Academy shall be made by the treasurer, in accordance with the decisions of the finance committee, in the corporate name of the Academy, in the manner and in the securities designated or specified in the instruments creating the several funds, or in the absence of such designation or specification, in bonds of the United States or of the several States, or in bonds or notes secured by first mortgages on real estate, in investments legal for savings banks under the laws of Massachusetts or New York, or in other securities recommended by the financial adviser.

The treasurer may invest the capital of all trust funds of the Academy which are not required by the instruments creating such

In order that adequate opportunity be given for the discussion of papers on the program, the committee on arrangements shall, in making up the program for the scientific sessions, allot not more than 80 percent of the available time of each session to the actual reading of papers.

If the number of papers accepted is too large to be presented in the scientific sessions, provision shall be made for holding two or more sessions simultaneously.

In arranging the program the committee on arrangements shall group the papers as nearly as practicable according to subject.

No paper shall be entered upon the printed program of scientific sessions unless the title is in the hands of the committee on arrangements at least 2 weeks in advance of the meeting. In the event that titles are received later, they shall be placed in order of receipt at the end of the list and read, if there is time. Such supplementary titles shall be conspicuously posted.

IV

SECTIONS

1. The term of service of each chairman of a section shall be 3 years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor, and to report the results of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms.

PROPOSALS FOR NOMINATION

2. (1) Intersectional: Proposals for nomination to membership may be made in writing by any five members of the Academy and addressed to the home secretary; each such proposal shall be accompanied by a record of the scientific activities of the person proposed and by a list of his principal contributions to science, in triplicate; and with a statement as to the sections to which the name proposed shall be submitted for consideration. Such proposals as have been received by the home secretary prior to October 1 shall upon that date be sent by him to the chairman of each section designated, with a copy of the record and list of contributions.

(2) Sectional: Proposals for nomination to membership shall be in writing and shall be sent to the chairman of the section not later than October 1. The proposal for nomination of any individual will be accepted for consideration by the section only if it is accompanied by a list of titles and references of the more important published scientific articles of the individual and by a factual summary, not over 250 words in length, of his accomplishments.

Each section chairman shall edit material thus received and, at the time of the informal ballot, distribute it, together with the material from the home secretary, relative to intersectional proposals, to the members of the section. The home secretary's office, if called upon, will assist the chairmen of the sections in the multigraphing of this material.

Each chairman shall keep a record of the names listed on the informal ballot and shall strike from the lists those names which were on the list in the previous year and received less than two votes on the informal ballot or had been on the list for 3 consecutive years without receiving in any one of these years on the informal ballot so many as one-fourth of the votes cast (counting the votes according to the number of members in the section who vote and not by the number of persons on the list for whom they vote). The home secretary shall keep a record of the votes on the informal ballots in the case of those persons proposed to two or more sections of the Academy and shall cause such names to be stricken from the lists of all sections if in 3 consecutive years there be no two sections in which the number of votes cast for the proposed nominee exceeds one-sixth of the votes cast in those sections except in case the number should be as many as one-fourth of the votes cast in one section, in which case the proposal should be considered thenceforth as a proposal in that section only. No proposal for nomination which is thus stricken from the list of the informal ballot shall be considered by the section (or sections) unless again proposed for nomination in the appropriate manner in a subsequent year.

NOMINATION BALLOTS

3. The chairman of each section of the Academy shall submit to the members of his section, not later than November 1 of each year, an informal ballot containing in alphabetical order and without indications of rank on ballots of the previous year, the names of all those persons who received not less than two votes in the informal ballot of the preceding year and not less than one-fourth of the votes on the informal ballot in at least one of the preceding 3 years in the case of names on the list for 3 years or have been continued on the list by the home secretary or have been added to the list by him or have been newly proposed for consideration in accordance with the procedure above defined. Each member of the section shall be expected to return his ballot to the chairman within 2 weeks, with his signature and with crosses against the names of those persons whom he is prepared to endorse for nomination. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he judges to be worthy of nomination.

In order to secure an adequate number of nominations the chairman, when necessary, shall obtain by personal solicitation a fuller vote of his section or shall submit to the section a supplementary formal ballot.

The chairman shall then certify to the home secretary, prior to January 1, the names of all persons who have been voted for on the formal ballots, together with a statement of the number of votes each candidate received and of the number of members voting. Of these, all persons who receive the votes of two thirds of the members voting in the section, in cases voted upon by one section only, or the votes of one-half (however distributed) of the members voting in any two sections, in cases voted upon by more than one section, shall be considered nominated.

A properly edited statement of the accomplishments of each individual nominated to the Academy by the sections shall be sent by the section chairmen to the home secretary along with the nominations of the section. These statements, together with summaries pertaining to those persons nominated intersectionally or nominated by the Council, shall be reproduced and distributed to the members of the Academy at the time of the preference ballot.

Persons nominated to the Academy and rejected by the Academy at the ensuing election may not be further considered by the sections until they have again been proposed for nomination in the appropriate manner in a subsequent year. Persons nominated but not voted upon by the Academy shall without further action be presented to the Academy upon the preference ballot of the next following year; but, if again not voted upon, the nominations shall lapse and not be considered except when renewed in the regular order.

ADVISORY COMMITTEE ON MEMBERSHIP

4. Meetings of the advisory committee on membership shall be held immediately following the election of new members of the Academy, at the annual meeting. The president of the Academy shall be chairman of the advisory committee on membership.

TEMPORARY NOMINATING GROUPS

Members of the Academy who have been asked to serve on temporary nominating groups by the advisory committee on membership shall retain membership in their respective sections and shall be entitled to vote on the informal and formal ballots of their section.

When a temporary nominating group is organized by the advisory committee on membership, the member of the group who is designated as chairman by the advisory committee on membership shall immediately notify all members of the Academy in that group of their assignment by the advisory committee on membership as members of the group, listing all members of the group in this notification, and shall further transmit to all members of the group the specifications as prepared by the advisory committee on membership, of the special branch of science which the group is to canvass; and shall then obtain from the members of the group, before October 1, proposals of names of persons in that special branch of science to be considered in the election of new members by the Academy. Such proposals shall be submitted to the group, by the chairman, not later than November 1 for informal ballot. The informal and formal ballots shall be governed by the same rules as ballots of sections; and the chairman shall report to the home secretary the results of the formal ballot of the group under the same rules as apply to sections.

PREFERENCE BALLOT

5. Preference ballots for the election of members shall be sealed in a blank envelope, which shall be enclosed in another bearing the name of the sender, and which shall be addressed to the home secretary, who shall cause the ballots to be tabulated for use at the election. If in any case it is impossible to determine who cast the ballot, or if the latter contain more or fewer than the number of names provided for in article IV, section 5, of the constitution, the ballot shall be rejected, but minor defects in a ballot shall be disregarded when the intent of the voter is obvious.

6. All discussions of the claims and qualifications of nominees at meetings of the Academy shall be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the Academy at the time of the discussion.

7. Members of the Academy are permitted to choose the section with which they wish to be affiliated, and no one shall be a member of more than one section; but this does not preclude service on a temporary nominating group at the request of the advisory committee on membership.

V

PROCEEDINGS

1. The publication of the Proceedings shall be under the general charge of the Council, which shall have final jurisdiction upon all questions of policy relating thereto.

The National Academy of Sciences and the National Research Council shall cooperate in the publication of the Proceedings, beginning with volume VII.

MEMOIRS

2. Memoirs may be presented at any time to the home secretary, who shall report the date of their reception at the next session; but no Memoir shall be published unless it has been read or presented by title before the Academy.

Before publication all Biographical and scientific Memoirs must be referred to the committee on publication, who may, if they deem best, refer any Memoir to a special committee, appointed by the president, to determine whether the same should be published by the Academy.

3. Memoirs shall date in the records of the Academy from the date of their presentation to the Academy, and the order of their presentation shall be so arranged by the secretary that, so far as may be convenient, those upon kindred topics shall follow one another.

TREASURER'S REPORT

4. The annual report of the treasurer shall contain—

(1) A concise statement of the source, object, and amount of all trust funds of the Academy.

(2) A condensed statement of receipts and expenditures.

(3) A statement of assets and liabilities.

(4) Accounts with individual funds.

(5) Such other matter as he considers appropriate.

AUDITING COMMITTEE

5. The accounts of the treasurer shall, between July 1 and October 1 of each year, be audited under the direction of a committee of three members to be appointed by the president at the annual meeting of the Academy. It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and the custodian of securities and to compare the stated income of such securities with the receipts of record: to examine all vouchers covering disbursements for account of the Academy, including the National Research Council, and the authority therefor, and to compare them with the treasurer's record of expenditures; to examine and verify the account of the Academy with each trust fund. The auditing committee may employ an expert accountant to assist the committee. The reports of the treasurer and auditing committee shall be presented to the Academy at the autumn meeting and shall be published with that of the president to Congress. They shall be distributed to the members in printed form at the annual meeting.

VI

PROPERTY

1. All apparatus and other materials of permanent value purchased with money from any grant from a trust fund shall be the property of the Academy unless specific exception is made in the grant or by subsequent action of the Council. Receipts for all such property shall be signed by the grantee and shall be forwarded to the home secretary, who shall file them with the custodian of buildings and grounds. All apparatus and unused material of value acquired in this way shall be delivered to the custodian of buildings and grounds on completion of the investigation for which the grant was made, or at any time on demand of the Council, and the custodian of buildings and grounds shall give an appropriate release therefor.

2. A stamp corresponding to the corporate seal of the Academy shall be kept by the secretaries, who shall be responsible for the due markings of all books and other objects to which it is applicable.

Labels or other proper marks of similar device shall be placed upon objects not admitting of the stamp.

3. The fiscal year of the Academy shall end on June 30 of each year.

STANDING COMMITTEES—RESEARCH FUNDS

4. Standing committees of the Academy on trust funds, the income of which is applied to the promotion of research, shall consist of 3 or 5 members. In order to secure rotation in office in such committees, when not in conflict with the provisions of the deeds of gift, the term of service on a committee of 3 members shall be 3 years; on a committee of 5 members the term shall be 5 years.

5. The annual reports of the committees on research funds shall, so far as the Academy has authority to determine their form, give a current number to each award, stating the name, position, and address of the recipient; the subject of research for which the award is made

and the sum awarded; and in later annual reports the status of the work accomplished under each award previously made shall be announced, until the research is completed, when announcement of its completion, and, if published, the title and place of publication shall be stated, and the record of the award shall be reported as closed.

VII

AMENDMENTS

1. Any bylaw of the Academy may be amended, suspended, or repealed on the written motion of any two members, signed by them, and presented at a stated meeting of the Academy, provided the same shall be approved by a majority of the members present.

3. ORGANIZATION OF THE ACADEMY

JULY 1, 1944

	Expiration of terms
Jewett, F. B., president	June 30, 1947
Bowman, Isaiah, vice president	June 30, 1945
Cannon, W. B., foreign secretary	June 30, 1946
Wright, F. E., home secretary	June 30, 1947
Hunsaker, J. C., treasurer	June 30, 1948

Kenerson, W. H., executive secretary[2]
Meid, G. D., business manager[2]

ADDITIONAL MEMBERS OF THE COUNCIL

1942–45:	1943–46:	1944–47:
Corner, G. W.	Clark, W. M.	Goodpasture, E. W.
Richards, A. N.	Miles, W. R.	Langmuir, Irving

1944–1945: Harrison, R. G.[3]

EXECUTIVE COMMITTEE OF THE COUNCIL

Jewett, F. B., chairman
Bowman, Isaiah
Clark, W. M.
Harrison, R. G.[3]
Hunsaker, J. C.
Richards, A. N.
Wright, F. E.

SECTIONS

1. *Mathematics*

Stone, M. H., chairman (1946)
Albert, A. A.
Alexander, J. W.
Bateman, Harry
Bell, E. T.
Birkhoff, G. D.
Blichfeldt, H. F.
Bliss, G. A.
Coble, A. B.
Eisenhart, L. P.
Evans, G. C.
Jackson, Dunham
Kasner, Edward
Lefschetz, Solomon
Miller, G. A.
Moore, R. L.
Morse, Marston
Murnaghan, F. D.
Osgood, W. F.
Ritt, J. F.
Thomas, T. Y.
Vandiver, H. S.
Veblen, Oswald
von Neumann, J.
Walsh, J. L.
Weyl, Hermann
Zariski, Oscar

2. *Astronomy*

Moulton, F. R., chairman (1947)
Abbot, C. G.
Adams, W. S.
Aitken, R. G.
Anderson, J. A.
Babcock, H. D.
Bowen, I. S.
Fleming, J. A.
Hubble, E. P.
Joy, A. H.
King, A. S.
Leuschner, A. O.
Merrill, P. W.
Mitchell, S. A.
Moore, J. H.
Nicholson, S. B.
Ross, F. E.
Russell, H. N.
Seares, F. H.
Shapley, Harlow
Slipher, V. M.
Stebbins, Joel
Struve, Otto
Trumpler, R. J.
Wright, W. H.

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[2] Not members of the Academy or of the Council of the Academy.

[3] The constitution of the Academy provides that the chief executive officer of the National Research Council be a member of the Council of the Academy and also a member of the executive committee of the Council of the Academy, provided he be a member of the Academy.

3. *Physics*

- Birge, R. T., chairman (1945)
- Anderson, C. D.
- Beams, J. W.
- Bethe, H. A.
- Breit, Gregory
- Bridgman, P. W.
- Coblentz, W. W.
- Compton, A. H.
- Compton, K. T.
- Condon, E. U.
- Coolidge, W. D.
- Crew, Henry
- Davis, Bergen
- Davisson, C. J.
- Dempster, A. J.
- DuBridge, L. A.
- Einstein, Albert
- Epstein, P. S.
- Houston, W. V.
- Hull, A. W.
- Ives, H. E.
- Kemble, E. C.
- Lauritsen, C. C.
- Lawrence, E. O.
- Lyman, Theodore
- Mason, Max
- Merritt, Ernest
- Millikan, R. A.
- Mulliken, R. S.
- Oppenheimer, J. R.
- Pierce, G. W.
- Rabi, I. I.
- Rossby, C.-G.
- Saunders, F. A.
- Slater, J. C.
- Slichter, L. B.
- Stewart, G. W.
- Tate, J. T.
- Van Vleck, J. H.
- Webster, D. L.
- Wilson, E. B.
- Wood, R. W.

4. *Engineering*

- Jeffries, Zay, chairman (1947).
- Adams, C. A.
- Briggs, L. J.
- Buckley, O. E.
- Bush, Vannevar
- Cottrell, F. G.
- Curme, G. O., Jr.
- Dryden, H. L.
- Dunn, Gano
- Durand, W. F.
- Fletcher, Harvey
- Foote, P. D.
- Hoover, Herbert
- Hovgaard, William
- Hunsaker, J. C.
- Jewett, F. B.
- Karman, T. von
- Kettering, C. F.
- Lewis, W. K.
- Loomis, A. L.
- Merica, P. D.
- Midgley, Thomas, Jr.
- Slepian, Joseph
- Timoshenko, Stephen
- Whitehead, J. B.
- Wright, Orville
- Zworykin, V. K.

5. *Chemistry*

- Marvel, C. S., chairman (1947)
- Adams, L. H.
- Adams, Roger
- Adkins, Homer
- Bachmann, W. E.
- Bancroft, W. D.
- Baxter, G. P.
- Bogert, Marston T.
- Bray, W. C.
- Conant, J. B.
- Fieser, L. F.
- Fuson, R. C.
- Giauque, W. F.
- Gomberg, Moses
- Hammett, L. P.
- Harkins, W. D.
- Hildebrand, J. H.
- Hudson, C. S.
- Hulett, G. A.
- Ipatieff, V. N.
- Jacobs, W. A.
- Johnson, T. B.
- Keyes, F. G.
- Kirkwood, J. G.
- Kistiakowsky, G. B.
- Kraus, C. A.
- Lamb, A. B.
- Langmuir, Irving
- Latimer, W. M.
- Lind, S. C.
- MacInnes, D. A.
- Noyes, W. A., Jr.
- Pauling, Linus
- Rodebush, W. H.
- Small, L. F.
- Tolman, R. C.
- Urey, H. C.
- Whitney, W. R.
- Yost, Don M.

6. *Geology*

- Longwell, C. R. chairman (1945)
- Allen, E. T.
- Berkey, C. P.
- Berry, E. W.
- Blackwelder, Eliot
- Bowen, N. L.
- Bowman, Isaiah
- Bucher, W. H.
- Buddington, A. F.
- Chamberlin, R. T.
- Cross, Whitman
- Daly, R. A.
- Day, A. L.
- Dunbar, C. O.
- Hewett, D. F.
- Kelley, W. P.
- Knopf, Adolph
- Larson, E. S., Jr.
- Lawson, A. C.
- Leith, C. K.
- Macelwane, J. B.
- Mead, W. J.
- Mendenhall, W. C.
- Merriam, J. C.
- Palache, Charles
- Ruedemann, Rudolf
- Scott, W. B.
- Simpson, G. G.
- Vaughan, T. W.
- Willis, Bailey
- Wright, F. E.

7. *Botany*

- Robbins, William J., chairman (1947)
- Allen, C. E.
- Bailey, I. W.
- Bailey, L. H.
- Beadle, G. W.
- Blakeslee, A. F.
- Campbell, D. H.
- Chandler, W. H.
- Cleland, R. E.
- Couch, J. N.
- Dodge, B. O.
- Duggar, B. M.
- Emerson, R. A.
- Fernald, M. L.
- Fred, E. B.
- Harper, R. A.
- Hoagland, D. R.
- Jones, D. F.
- Jones, L. R.
- Kunkel, L. O.
- McClintock, Barbara
- Merrill, E. D.
- Osterhout, W. J. V.
- Sax, Karl
- Sinnott, E. W.
- Stadler, L. J.
- Stakman, E. C.
- Thom, Charles
- Trelease, William
- Waksman, S. A.

8. *Zoology and Anatomy*

- Corner, G. W., chairman (1946)
- Barbour, Thomas
- Bigelow, H. B.
- Castle, W. E.
- Chapman, F. M.
- Child, C. M.
- Conklin, E. G.
- Danforth, C. H.
- Davenport, C. B.
- Detwiler, S. R.
- Dobzhansky, Theodosius
- Dunn, L. C.
- Gregory, W. K.
- Harrison, R. G.
- Hartman, C. G.
- Harvey, E. N.
- Herrick, C. J.
- Jacobs, M. H.
- Jennings, H. S.
- Kofoid, C. A.
- Lewis, W. H.
- Lillie, F. R.
- McClung, C. E.
- Mark, E. L.
- Moore, C. R.
- Morgan, T. H.
- Muller, H. J.
- Painter, T. S.
- Parker, G. H.
- Patterson, J. T.
- Riddle, Oscar
- Romer, A. S.
- Smith, P. E.
- Streeter, G. L.
- Sturtevant, A. H.
- Sumner, F. B.
- Taliaferro, W. H.
- Taylor, C. V.
- Wislocki, G. B.
- Woodruff, L. L.
- Wright, S. G.

9. *Physiology and Biochemistry*

- Gasser, H. S., chairman (1945)
- Bard, Philip
- Bronk, D. W.
- Cannon, W. B.
- Carlson, A. J.
- Clark, W. M.
- Clarke, H. T.
- Cohn, E. J.
- Cori, C. F.
- Doisy, E. A.
- DuBois, E. F.
- du Vigneaud, Vincent
- Elvehjem, C. A.
- Erlanger, Joseph
- Evans, H. M.
- Fenn, W. O.
- Forbes, Alexander
- Hart, Edwin B.
- Hastings, A. B.
- Hecht, Selig
- Henderson, Yandell
- Howell, W. H.
- Hunt, Reid
- McCollum, E. V.
- MacNider, W. de B.
- Marshall, E. K., Jr.
- Maynard, L. A.
- Michaelis, Leonor
- Northrop, J. H.
- Richards, A. N.
- Rose, W. C.
- Shaffer, P. A.
- Sherman, H. C.
- Stanley, W. M.
- Van Slyke, D. D.
- Vickery, H. B.

10. *Pathology and Bacteriology*

- Opie, E. L., chairman (1945)
- Addis, Thomas
- Armstrong, Charles
- Avery, O. T.
- Castle, W. B.
- Cole, Rufus
- Dochez, A. R.
- Dubos, R. J.
- Flexner, Simon
- Goodpasture, E. W.
- Graham, E. A.
- Heidelberger, Michael
- Hektoen, Ludvig
- Loeb, Leo
- Longcope, W. T.
- Meyer, K. F.
- Minot, G. R.
- Murphy, J. B.
- Novy, F. G.
- Rivers, T. M.
- Robertson, O. H.
- Rous, Peyton
- Sabin, Florence R.
- Shope, R. E.
- Tyzzer, E. E.
- Whipple, G. H.
- Wolbach, S. B.

11. *Anthropology and Psychology*

- Kidder, A. V., chairman (1947)
- Angell, J. R.
- Boring, E. G.
- Carmichael, Leonard
- Dewey, John
- Hooton, E. A.
- Hull, C. L.
- Hunter, W. S.
- Kroeber, A. L.
- Lashley, K. S.
- Lowie, R. H.
- Miles, W. R.
- Pillsbury, W. B.
- Schultz, A. H.
- Seashore, C. E.
- Stone, C. P.
- Stratton, G. M.
- Swanton, J. R.
- Terman, L. M.
- Thorndike, E. L.
- Thurstone, L. L.
- Tolman, E. C.
- Tozzer, A. M.
- Wever, E. G.
- Wissler, Clark
- Woodworth, R. S.
- Yerkes, R. M.

TEMPORARY NOMINATING GROUPS

(Designated by the Advisory Committee on Membership)

AGRICULTURAL SCIENCE

E. D. MERRILL, chairman (1945)

Chemistry.—W. H. Rodebush.

Geology.—Eliot Blackwelder, W. P. Kelley.

Botany.—I. W. Bailey, W. H. Chandler, B. M. Duggar, E. B. Fred, D. R. Hoagland, L. O. Kunkel, E. D. Merrill, W. J. Robbins, E. W. Sinnott, E. C. Stakman.

Zoology and anatomy.—W. H. Taliaferro, S. G. Wright.

Physiology and biochemistry.—C. A. Elvehjem, E. B. Hart, L. A. Maynard, W. C. Rose, W. M. Stanley, H. B. Vickery.

Pathology and bacteriology.—R. J. Dubos, R. E. Shope, E. E. Tyzzer.

GEOPHYSICS

J. A. FLEMING, chairman (1945)

Mathematics.—Harry Bateman, G. D. Birkhoff, F. D. Murnaghan.

Astronomy.—C. G. Abbot, J. A. Fleming, Harlow Shapley.

Physics.—P. W. Bridgman, A. H. Compton, Max Mason, C.-G. Rossby, L. B. Slichter.

Engineering.—L. J. Briggs, Vannevar Bush, J. C. Hunsaker, T. von Karman.

Chemistry.—L. H. Adams, S. C. Lind.

Geology.—Isaiah Bowman, Arthur L. Day, Adolph Knopf, J. B. Macelwane, T. W. Vaughan, F. E. Wright.

Botany.—S. A. Waksman.

Zoology and anatomy.—H. B. Bigelow, F. R. Lillie.

4. STANDING COMMITTEES OF THE ACADEMY

ADVISORY COMMITTEE ON SCIENTIFIC PUBLICATIONS

(Temporary Joint Committee of the Academy and Research Council)

Eisenhart, L. P., chairman
Breit, Gregory
Clark, W. M.
Fletcher, Harvey
Fred, E. B.
Pegram, G. B.
Urey, H. C.
Weed, L. H.
Wever, E. G.

ALBERT NATIONAL PARK

Yerkes, R. M., chairman
Chapman, F. M.
Wissler, Clark

AUDITING COMMITTEE

Mendenhall, W. C., chairman
Day, A. L.
Swanton, J. R.

BIOGRAPHICAL MEMOIRS

Streeter, G. L., chairman
Thorndike, E. L.
Wright, F. E.

BUILDINGS AND GROUNDS ADVISORY COMMITTEE (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

Meid, G. D., chairman
Griggs, R. F.
Harrison, R. G.
Richards, A. N.
Wright, F. E.

CALENDAR

Wright, F. E., chairman
Dunn, Gano
Millikan, R. A.
Russell, H. N.

EXHIBITS (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

Wright, F. E., chairman.
Kenerson, W. H., secretary.
Shapley, Harlow, member-at-large.
The chairman of each of the sections of the Academy.
The chairman of each of the divisions of the Research Council.

Executive committee on exhibits

Wright, F. E., chairman
Day, A. L.
Kenerson, W. H., secretary
Harrison, R. G.
Merriam, J. C.

FINANCE COMMITTEE

The treasurer of the Academy, chairman ex officio (J. C. Hunsaker).
The president of the Academy, ex officio (F. B. Jewett).
The chairman of the National Research Council, ex officio (R. G. Harrison).
Bowman, Isaiah
Bush, Vannevar
Robbins, W. J.

LIBRARY

Hudson, C. S., chairman
Adams, W. S.
Compton, K. T.
Harkins, W. D.
Kenerson, W. H.
Parker, G. H.
Scott, W. B.

Subcommittee on the library

Hudson, C. S., chairman
Swanton, J. R.
Coblentz, W. W., vice chairman
Streeter, G. L.

PAMPHLET ON THE BUILDING

Wright, F. E., chairman
Howell, W. H.
Kenerson, W. H.
Merriam, J. C.

PROCEEDINGS, EDITORIAL BOARD

Cannon, W. B.
Carmichael, L.
Clark, W. M.
Day, A. L.
Durand, W. F.
Elvehjem, C. A.
Eisenhart, L. P.
Goodpasture, E. W.
Griggs, R. F.
Harrison, R. G.
Jewett, F. B.
Lamb, A. B.
Lawrence, E. O.
Miles W. R.
Osterhout W. J. V.
Robey, W. M.
Seares F. H.
Weed L. H.
Wright, F. E.
Wright, Sewall

PUBLICATIONS OF THE ACADEMY

The president of the Academy (F. B. Jewett).
The home secretary of the Academy (F. E. Wright).
Conklin, E. G.

REVISION OF THE CONSTITUTION

Wilson, E. B., chairman
Day, A. L.
Dunn, Gano
Merriam, J. C.
Morgan, T. H.

WEIGHTS, MEASURES, AND COINAGE

Dunn, Gano, chairman
Baxter, G. P.
Wood, R. W.

5. TRUST FUNDS OF THE ACADEMY

ALEXANDER DALLAS BACHE FUND

[$60,000]

Researches in physical and natural science

Board of directors

Wilson, E. B., chairman
Osterhout, W. J. V.
Wright, Sewall

JAMES CRAIG WATSON FUND

[$25,000]

Watson medal and the promotion of astronomical research

Trustees

Leuschner, A. O., chairman.
Ross, F. E.
Seares, F. H.

WATSON MEDAL AWARDS

Gould, B. A., 1887
Schoenfeld, Ed., 1889
Auwers, Arthur, 1891
Chandler, S. C., 1894
Gill, Sir David, 1899
Kapteyn, J. C., 1913
Leuschner, A. O., 1915
Charlier, C. V. L., 1924
de Sitter, Willem, 1929
Brown, Ernest William, 1936

HENRY DRAPER FUND

[$10,000]

Draper medal and investigations in astronomical physics

Committee

Moore, J. H., chairman (1945)
King, A. S. (1947)
Stebbins, Joel (1948)
Struve, Otto (1949)
Trumpler, R. J. (1946)

HENRY DRAPER MEDAL AWARDS

Langley, S. P., 1886
Pickering, E. C., 1888
Rowland, H. A., 1890
Vogel, H. K., 1893
Keeler, J. E., 1899
Huggins, Sir Wm., 1901
Hale, George E., 1904
Campbell, W. W., 1906
Abbot, C. G., 1910
Deslandres, H., 1913
Stebbins, Joel, 1915
Michelson, A. A., 1916
Adams, W. S., 1918
Fabry, Charles, 1919
Fowler, Alfred, 1920
Zeeman, Pieter, 1921
Russell, H. N., 1922
Eddington, Sir Arthur Stanley, 1924
Shapley, Harlow, 1926
Wright, William Hammond, 1928
Cannon, Annie Jump, 1931
Slipher, V. M., 1932
Plaskett, John Stanley, 1934
Mees, C. E. Kenneth, 1936
Wood, Robert Williams, 1940
Bowen, Ira Sprague, 1942

J. LAWRENCE SMITH FUND

[$10,000]

J. Lawrence Smith medal and investigations of meteoric bodies

Committee

Fleming, J. A., chairman (1945)
Adams, L. H. (1949)
Longwell, C. R. (1948)
Mitchell, S. A. (1947)
Nicholson, S. B. (1946)

J. LAWRENCE SMITH MEDAL AWARDS

Newton, H. A., 1888
Merrill, George P., 1922

BARNARD MEDAL FOR MERITORIOUS SERVICE TO SCIENCE [4]

Discoveries in physical science or novel application of science to purposes beneficial to the human race

Committee

Hubble, Edwin, chairman
Davis, Bergen
Day, A. L.
Tolman, R. C.
Whitney, W. R.

BARNARD MEDAL AWARDS

Rayleigh, Lord, 1895
Röntgen, Wilhelm Conrad, 1900
Becquerel, Henri, 1905
Rutherford, Baron: Ernest Rutherford, 1909
Bragg, Sir William H., and Bragg, W. L., 1914
Einstein, Albert, 1921
Bohr, Neils, 1925
Heisenberg, Werner, 1930
Hubble, Edwin, 1935
Joliot, F., and Curie, Irène, 1940

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[4] Every 5 years the committee recommends the person whom they consider most deserving of the medal, and upon approval by the Academy, the name of the nominee is forwarded to the trustees of Columbia University, who administer the Barnard Medal Fund.

Benjamin Apthorp Gould Fund

[$20,000]

Researches in astronomy

Board of directors

Moulton, F. R., chairman
Adams, W. S.
Stebbins, Joel

Wolcott Gibbs Fund

[$5,545.50]

Chemical research

Board of directors

Baxter, G. P., chairman
Adams, Roger
Kraus, C. A.

Cyrus B. Comstock Fund

[$15,000]

Prize awarded every 5 years for most important discovery or investigation in electricity, magnetism, and radiant energy, or to aid worthy investigations in those subjects

Committee

Davisson, C. J., chairman (1946)
Bridgman, P. W. (1945)
Bush, V. (1949)
Dunn, Gano (1947)
Loomis, A. L. (1948)

COMSTOCK PRIZE AWARDS

Millikan, R. A., 1913
Barnett, S. J., 1918
Duane, William, 1923
Davisson, C. J., 1928
Bridgman, P. W., 1933
Lawrence, E. O., 1938

Marsh Fund

[$20,000]

Original research in the natural sciences

Committee

Fred, E. B., chairman (1945)
Mead, W. J. (1949)
Mendenhall, W. C. (1946)
Painter, T. S. (1948)
Simpson, G. G. (1947)

Agassiz Fund

[$50,000]

General uses of the Academy

Murray Fund

[$10,000]

Agassiz medal for original contributions in the science of oceanography

Committee

Daly, R. A., chairman (1945)
Bigelow, H. B. (1947)
Parker, G. H. (1946)

AGASSIZ MEDAL AWARDS

Hjort, Johan, 1913
Albert I, Prince of Monaco, 1918
Sigsbee, C. D., 1920
Pettersson, Otto Sven, 1924
Bjerknes, Vilhelm, 1926
Weber, Max, 1927
Ekman, Vagn Walfrid, 1928
Gardiner, J. Stanley, 1929
Schmidt, Johannes, 1930
Bigelow, Henry Bryant, 1931
Defant, Albert, 1932
Helland-Hansen, Bjorn, 1933
Gran, Haakon Hasberg, 1934
Vaughan, T. Waynald, 1935
Knudsen, Martin, 1936
Allen, Edgar Johnson, 1937
Sverdrup, Harald Ulrik, 1938
Lillie, Frank Rattray, 1939
Iselin, Columbus, II, 1942

MARCELLUS HARTLEY FUND

[$1,200]

Medal for eminence in the application of science to the public welfare

Committee

Robbins, W. J., chairman (1945)
Dochez, A. R. (1947)
Durand, W. F. (1945)
Ives, H. E. (1946)
Slepian, Joseph (1946)
Tate, J. T. (1947)

PUBLIC WELFARE MEDAL AWARDS

(In memory of Marcellus Hartley)

Goethals, G. W., 1914
Gorgas, W. C., 1914
Abbe, Cleveland, 1916
Pinchot, Gifford, 1916
Stratton, S. W., 1917
Hoover, Herbert, 1920
Stiles, C. W. 1921
Chapin, Charles V., 1928
Mather, Stephen Tyng, 1930
Rose, Wickliffe, 1931
Park, William Hallock, 1932
Fairchild, David, 1933
Vollmer, August, 1934
Russell, F. F. 1935
Cumming, Hugh S., 1935
Whitney, Willis Rodney, 1937
Hoover, John Edgar, 1939
Rockefeller, John Davison, Jr., 1943

DANIEL GIRAUD ELLIOT FUND

[$8,000]

Medal and honorarium for most meritorious work in zoology or paleontology published each year

Committee

Gregory, W. K., chairman
Barbour, Thomas
Sturtevant, A. H.

DANIEL GIRAUD ELLIOT MEDAL AWARDS

Chapman, F. M., 1917
Beebe, William, 1918
Ridgway, Robert, 1919
Abel, Othenio, 1920
Dean, Bashford, 1921
Wheeler, William Morton, 1922
Canu, Ferdinand, 1923
Breuil, Henri, 1924
Wilson, Edmund B., 1925
Stensiö, Erik A.: Son, 1927
Seton, Ernest Thompson, 1928
Osborn, Henry Fairfield, 1929
Coghill, George Ellett, 1930
Black, Davidson, 1931
Chapin, James P., 1932
Lull, Richard Swann, 1933
Painter, Theophilus Shickel, 1934
Colbert, Edwin H., 1935
Murphy, Robert Cushman, 1936
Parker, George Howard, 1937

BILLINGS FUND

[$23,748.88]

For partial support of the Proceedings or for such other purposes as the Academy may select

Mary Clark Thompson Fund

[$10,000]

Medal for most important services to geology and paleontology

Committee

Bucher, W. H., chairman (1946)
Blackwelder, E. (1947)
Mead, W. J. (1945)

MARY CLARK THOMPSON MEDAL AWARDS

Walcott, Charles Doolittle, 1921
Margerie, Emm. de, 1923
Clarke, John Mason, 1925
Smith, James Perrin, 1928
Scott, William Berryman, 1930
Ulrich, Edward Oscar, 1930
White, David, 1931
Bather, Francis Arthur, 1932
Schuchert, Charles, 1934
Grabau, Amadeus William, 1936
Watson, David Meredith Sears, 1941
Woodward, Sir Arthur Smith, 1942

Joseph Henry Fund

[$45,163.50]

To assist meritorious investigators, especially in the direction of original research

Committee

Miles, W. R., chairman (1945)
Birge, R. T. (1949)
Bronk, D. W. (1948)
McClung, C. E. (1947)
Tolman, R. C. (1946)

George True Nealley Fund

[$19,555.55]

For the general purposes of the Academy

Charles Doolittle Walcott Fund

[$5,000]

For stimulation of research in pre-Cambrian or Cambrian life by award of a medal and honorarium every 5 years

Board of trustees

Vaughan, T. W., temporary chairman.
Abbot, C. G. (representing the Smithsonian Institution).
Pruvost, Pierre (representing the Institut de France).
Jones, O. T. (representing the Royal Society of London).
Bucher, W. H.

CHARLES DOOLITTLE WALCOTT MEDAL AWARDS

White, David, 1934
Westergaard, A. H., 1939

John J. Carty Fund

[$25,000]

Medal and monetary award, not oftener than once in every 2 years, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy

Committee

Buckley, O. E., chairman (1946)
Adams, Roger (1947)
Bowman, Isaiah (1948)
Bush, Vannevar (1945)
Murphy, J. B. (1949)

JOHN J. CARTY MEDAL AWARDS

Carty, John J., 1932
Wilson, Edmund Beecher, 1936
Bragg, Sir William, 1939
Conklin, Edwin G., 1943

CARNEGIE ENDOWMENT FUND

[$3,550,000]

For the purposes of the National Academy of Sciences and National Research Council

NATIONAL SCIENCE FUND

Board of directors

Ex officio

- The president of the Academy, Frank B. Jewett
- The treasurer of the Academy, Jerome C. Hunsaker
- The chairman of the Research Council, Ross G. Harrison
- The president of the American Association for the Advancement of Science, Anton J. Carlson

Non-Academy members

- Winthrop W. Aldrich
- James F. Bell
- John W. Davis
- Homer L. Ferguson
- Walter S. Gifford
- Carlton J. H. Hayes
- Archibald MacLeish
- Harvey S. Mudd
- Elihu Root, Jr.
- Tom K. Smith
- Lewis L. Strauss
- Harold H. Swift

Academy members

- Roger Adams
- James R. Angell
- Albert F. Blakeslee
- Isaiah Bowman
- Arthur H. Compton
- James B. Conant
- Edwin G. Conklin
- Luther P. Eisenhart
- Herbert S. Gasser
- Herbert Hoover
- Ernest O. Lawrence
- Frank R. Lillie
- Robert A. Millikan
- Alfred N. Richards
- William J. Robbins
- Harlow Shapley
- George H. Whipple

Chairman of the board: William J. Robbins.

Executive secretary of the National Science Fund: Howland H. Sargeant.

Office of the National Science Fund: 2101 Constitution Avenue, Washington 25, D. C.

6. MEMBERS OF THE NATIONAL ACADEMY OF SCIENCES

July 1, 1944

	Elected
Abbot, Charles Greeley, Smithsonian Institution, Washington 25, D. C.	1915
Adams, Comfort Avery, the Edward G. Budd Manufacturing Co., Philadelphia, 32, Pa.	1930
Adams, Leason Heberling, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton St., Washington 8, D. C.	1943
Adams, Roger, University of Illinois, Urbana, Ill.	1929
Adams, Walter Sydney, Mount Wilson Observatory, Pasadena 4, Calif.	1917
Addis, Thomas, Stanford University Medical School, 2398 Sacramento St., San Francisco 15, Calif.	1944
Adkins, Homer, 369 Chemistry Bldg., University of Wisconsin, Madison 6, Wis.	1942
Aitken, Robert Grant, 1109 Spruce St., Berkeley 7, Calif.	1918
Albert, Abraham Adrian, Department of Mathematics, University of Chicago, Chicago 37, Ill.	1943
Alexander, James Waddell, Princeton, N. J.	1930
Allen, Charles Elmer, room 103, Biology Bldg., University of Wisconsin, Madison 6, Wis.	1924
Allen, Eugene Thomas, The Irvington, 135 Pleasant St., Arlington 74, Mass.	1930
Anderson, Carl David, California Institute of Technology, Pasadena 4, Calif.	1938
Anderson, John August, Post Office Box 332, Pasadena 17, Calif.	1928

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Angell, James Rowland, 155 Blake Rd., New Haven 5, Conn	1920
Armstrong, Charles, National Institute of Health, Bethesda 14, Md	1944
Avery, Oswald Theodore, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1933
Babcock, Harold Delos, Mount Wilson Observatory, Pasadena 4, Calif	1933
Bachmann, Werner Emmanuel, University of Michigan, Ann Arbor, Mich	1941
Bailey, Irving Widmer, Biological Laboratories, Harvard University Cambridge 38, Mass	1929
Bailey, Liberty Hyde, Bailey Hortorium, Ithaca, N. Y	1917
Bancroft, Wilder Dwight, 7 East Ave., Ithaca, N. Y	1920
Barbour, Thomas, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1933
Bard, Philip, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1944
Bateman, Harry, California Institute of Technology, Pasadena 4, Calif	1930
Baxter, Gregory Paul, T. Jefferson Coolidge, Jr., Memorial Laboratory, Cambridge 38, Mass	1916
Beadle, George Wells, Department of Biology, Stanford University, Stanford University, Calif	1944
Beams, Jesse Wakefield, Rouss Physical Laboratory, University of Virginia, Charlottesville, Va	1943
Bell, Eric Temple, California Institute of Technology, Pasadena 4, Calif	1927
Berkey, Charles Peter, Department of Geology, Columbia University, New York 27, N. Y	1927
Berry, Edward Wilber, Johns Hopkins University, Baltimore 18, Md	1922
Bethe, Hans Albrecht, Cornell University, Ithaca, N. Y	1944
Bigelow, Henry Bryant, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1931
Birge, Raymond Thayer, University of California, Berkeley 4, Calif	1932
Birkhoff George David, 987 Memorial Dr., Cambridge 38, Mass	1918
Blackwelder, Eliot, Post Office Box N, Stanford University, Calif	1936
Blakeslee, Albert Francis, Department of Botany, Smith College, Northampton, Mass	1929
Blichfeldt, Hans Frederik, 520 West Crescent Dr., Palo Alto, Calif	1920
Bliss, Gilbert Ames, University of Chicago, Chicago 37, Ill	1916
Bogert, Marston Taylor, 566 Chandler Laboratories, Columbia University, New York 27, N. Y	1916
Boring, Edwin Garrigues, Emerson Hall, Harvard University, Cambridge 38, Mass	1932
Bowen, Ira Sprague, California Institute of Technology, Pasadena 4, Calif	1936
Bowen, Norman Levi, Rosenwald Hall, University of Chicago, Chicago 37, Ill	1935
Bowman, Isaiah, Johns Hopkins University, Baltimore 18, Md	1930
Bray, William Crowell, Department of Chemistry, University of California, Berkeley 4, Calif	1924
Breit, Gregory, Ballistic Research Laboratory, Aberdeen Proving Ground, Md	1939
Bridgman, Percy Williams, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1918
Briggs, Lyman James, National Bureau of Standards, Washington 25, D. C	1942
Bronk, Detlev Wulf, Johnson Research Foundation, University of Pennsylvania, Philadelphia 4, Pa	1939
Bucher, Walter Hermann, Department of Geology, Columbia University, New York 27, N. Y	1938
Buckley, Oliver Ellsworth, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1937
Buddington, Arthur Francis, Princeton University, Priceton, N. J	1943
Bush, Vannevar, Carnegie Institution of Washington, Washington 5, D. C	1934
Campbell, Douglas Houghton, Stanford University, Stanford University, Calif	1910
Cannon, Walter Bradford, 20 Prescott St., Cambridge 38, Mass	1914
Carlson, Anton Julius, University of Chicago, Chicago 37, Ill	1920
Carmichael, Leonard, Tufts College, Medford 55, Mass	1943

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Castle, William Bosworth, Boston City Hospital, Boston 18, Mass	1939
Castle, William Ernest, 421 Spruce St., Berkeley 8, Calif	1915
Chamberlin, Rollin Thomas, University of Chicago, Chicago 37, Ill	1940
Chandler, William Henry, College of Agriculture, University of California, 405 Hilgard Ave., Los Angeles 24, Calif	1943
Chapman, Frank Michler, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1921
Child, Charles Manning, Jordan Hall, Stanford University, Stanford University, Calif	1935
Clark, William Mansfield, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1928
Clarke, Hans Thacher, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1942
Cleland, Ralph Erskine, Indiana University, Bloomington, Ind	1942
Coble, Arthur Byron, University of Illinois, Urbana, Ill	1924
Coblentz, William Weber, National Bureau of Standards, Washington 25, D. C	1930
Cohn, Edwin Joseph, Harvard Medical School, Boston 15, Mass	1943
Cole, Rufus, Mount Kisco, N. Y	1922
Compton, Arthur Holly, University of Chicago, Chicago 37, Ill	1927
Compton, Karl Taylor, 111 Memorial Dr., Cambridge 39, Mass	1924
Conant, James Bryant, Harvard University, Cambridge 38, Mass	1929
Condon, Edward Uhler, Westinghouse Research Laboratories, East Pittsburgh, Pa	1944
Conklin, Edwin Grant, Princeton University, Princeton, N. J	1908
Coolidge, William David, General Electric Co., Schenectady 5, N. Y	1925
Cori, Carl Ferdinand, School of Medicine, Washington University, St. Louis 10, Mo	1940
Corner, George Washington, Department of Embryology, Carnegie Institution of Washington, Wolfe and Madison Sts., Baltimore 5, Md	1940
Cottrell, Frederick Gardner, 1557 Waverly St., Palo Alto, Calif	1939
Couch, John Nathaniel, University of North Carolina, Chapel Hill, N. C	1943
Crew, Henry, 620 Library Pl., Evanston, Ill	1909
Cross, Charles Whitman, 101 East Kirke St., Chevy Chase 15, Md	1908
Curme, George Oliver, Jr., Carbide and Carbon Chemical Corp., 30 East 42d St., New York 11, N. Y	1944
Daly, Reginald Aldworth, 23 Hawthorn St., Cambridge 38, Mass	1925
Danforth, Charles Haskell, Department of Anatomy, Stanford University, Stanford University, Calif	1942
Davis, Bergen, 44 Morningside Dr., New York 25, N. Y	1929
Davisson, Clinton Joseph, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1929
Day, Arthur Louis, 9113 Old Georgetown Rd., Bethesda 14, Md	1911
Dempster, Arthur Jeffrey, University of Chicago, Chicago 37, Ill	1937
Detwiler, Samuel Randall, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1932
Dewey, John, Columbia University, New York 27, N. Y	1910
Dobzhansky, Theodosius, Department of Zoology, Columbia University, New York 27, N. Y	1943
Dochez, Alphonse Raymond, Columbia University, Presbyterian Hospital, 620 West 168th St., New York 32, N. Y	1933
Dodge, Bernard Ogilvie, New York Botanical Garden, Bronx Park (Fordham Station, New York 58, N. Y	1933
Doisy, Edward Adelbert, St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis 4, Mo	1938
Dryden, Hugh Latimer, National Bureau of Standards, Washington 25, D. C	1944
DuBois, Eugene Floyd, Cornell University Medical College, 1300 York Ave., New York 21, N. Y	1933
Dubos, René Jules, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1941
DuBridge, Lee Alvin, Radiation Laboratory, Massachusetts Institute of Technology, Cambridge 39, Mass	1943

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Duggar, Benjamin Minge, Biology Bldg., University of Wisconsin, Madison 6, Wis	1927
Dunbar, Carl Owen, Peabody Museum, Yale University, New Haven, Conn	1944
Dunn, Gano, 80 Broad St., New York 4, N. Y	1919
Dunn, Leslie Clarence, Columbia University, New York 27, N. Y	1943
Durand, William Frederick, Stanford University, Stanford University, Calif	1917
du Vigneaud, Vincent, Cornell University Medical College, New York 21, N. Y	1944
Einstein, Albert, the Institute for Advanced Study, Princeton, N. J	1942
Eisenhart, Luther Pfahler, Princeton, N. J	1922
Elvehjem, Conrad Arnold, Department of Biochemistry, University of Wisconsin, Madison 6, Wis	1942
Emerson, Rollins Adams, Cornell University, Ithaca, N. Y	1927
Epstein, Paul Sophus, 1484 Oakdale St., Pasadena 4, Calif	1930
Erlanger, Joseph, Washington University School of Medicine, 4580 Scott Ave., St. Louis 10, Mo	1922
Evans, Griffith Conrad, Department of Mathematics, University of California, Berkeley 4, Calif	1933
Evans, Herbert McLean, Institute of Experimental Biology, University of California, Berkeley 4, Calif	1927
Fenn, Wallace Osgood, School of Medicine and Dentistry, University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1943
Fernald, Merritt Lyndon, Gray Herbarium, Harvard University, Cambridge 38, Mass	1935
Fieser, Louis Frederick, Harvard University, Cambridge 38, Mass	1940
Fleming, John Adam, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd., Washington 15, D. C	1938
Fletcher, Harvey, Bell Telephone Laboratories, Murray Hill, N. J	1935
Flexner, Simon, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1908
Foote, Paul Darwin, Gulf Research & Development Co., Post Office Drawer 2038, Pittsburgh 30, Pa	1943
Forbes, Alexander, 1600 16th St., Washington 9, D. C	1936
Franck, James, University of Chicago, Department of Chemistry, Chicago 37, Ill	1944
Fred, Edwin Broun, University of Wisconsin, Madison 6, Wis	1931
Fuson, Reynold Clayton, 263 Noyes Laboratory, University of Illinois, Urbana, Ill	1944
Gasser, Herbert Spencer, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Giauque, William Francis, University of California, Berkeley 4, Calif	1936
Gomberg, Moses, University of Michigan, Ann Arbor, Mich	1914
Goodpasture, Ernest William, Vanderbilt University, Nashville 4, Tenn	1937
Graham, Evarts Ambrose, Barnes Hospital, 600 South Kingshighway, St. Louis 10, Mo	1941
Gregory, William King, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1927
Hammett, Louis Plack, Explosives Research Laboratory, 4800 Forbes St., Pittsburgh 13, Pa	1943
Harkins, William Draper, University of Chicago, Chicago 37, Ill	1921
Harper, Robert Almer, Route 5, Bedford, Va	1911
Harrison, Ross Granville, Osborn Zoological Laboratory, Yale University, New Haven, Conn	1913
Hart, Edwin Bret, Biochemistry Bldg., University of Wisconsin, Madison 6, Wis	1944
Hartman, Carl Gottfried, Department of Zoology, University of Illinois, Urbana, Ill	1937
Harvey, Edmund Newton, Guyot Hall, Princeton University, Princeton, N. J	1934
Hastings, Albert Baird, Department of Biological Chemistry, Harvard University Medical School, Boston 15, Mass	1939

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Hecht, Selig, Columbia University, New York 27, N. Y	1944
Heidelberger, Michael, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1942
Hektoen, Ludvig, Chicago Tumor Institute, 21 West Elm St., Chicago 10, Ill	1918
Herrick, Charles Judson, 236 Morningside Dr. SE., Grand Rapids 6, Mich	1918
Hewett, Donnel Foster, U. S. Geological Survey, Washington 25, D. C	1937
Hildebrand, Joel Henry, Gilman Hall, University of California, Berkeley 4, Calif	1929
Hoagland, Dennis Robert, Division of Plant Nutrition, University of California, Berkeley 4, Calif	1934
Hooton, Earnest Albert, Peabody Museum, Harvard University, Cambridge 38, Mass	1935
Hoover, Herbert Clark, Palo Alto, Calif	1922
Houston, William Vermillon, California Institute of Technology, Pasadena 4, Calif	1943
Hovgaard, William, Hotel Margaret, Columbia Heights, Brooklyn 2, N. Y	1929
Howell, William Henry, 112 St. Dunstan's Rd. Baltimore 12, Md	1905
Hubble, Edwin Powell, Mount Wilson Observatory, Pasadena 4, Calif	1927
Hudson, Claude Silbert, National Institute of Health, Bethesda 14, Md	1927
Hulett, George Augustus, 44 Washington Rd., Princeton, N. J	1922
Hull, Albert Wallace, Research Laboratory, General Electric Co., Schenectady 5, N. Y	1929
Hull, Clark Leonard, Institute of Human Relations, Yale University, 333 Cedar St., New Haven, Conn	1936
Hunsaker, Jerome Clark, Massachusetts Institute of Technology, Cambridge 39, Mass	1935
Hunt, Reid, Harvard Medical School, Boston 15, Mass	1919
Hunter, Walter Samuel, Brown University, Providence 12, R. I	1935
Ipatieff, Vladimir Nikolaevich, Universal Oil Products Co., Riverside, Ill	1939
Ives, Herbert Eugene, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1933
Jackson, Dunham, University of Minnesota, Minneapolis 14, Minn	1935
Jacobs, Merkel Henry, School of Medicine, University of Pennsylvania, Philadelphia 4, Pa	1939
Jacobs, Walter Abraham, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1932
Jeffries, Zay, General Electric Co., Pittsfield, Mass	1939
Jennings, Herbert Spencer, Department of Zoology, University of California, Los Angeles 24, Calif	1914
Jewett, Frank Baldwin, 350 5th Ave., New York 1, N. Y	1918
Johnson, Treat Baldwin, Bethwood, Amity Rd., Bethany, Rural Free Delivery 1, New Haven, Conn	1919
Jones, Donald Forsha, Box 1106, Department of Genetics, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1939
Jones, Lewis Ralph, Department of Plant Pathology, University of Wisconsin, Madison 6, Wis	1920
Joy, Alfred Harrison, Mount Wilson Observatory, Pasadena 4, Calif	1944
Kasner, Edward, Columbia University, New York 27, N. Y	1917
Kelley, Walter Pearson, College of Agriculture, University of California, Berkeley 4, Calif	1943
Kemble, Edwin Crawford, the Physics Laboratories, Harvard University, Cambridge 38, Mass	1931
Kettering, Charles Franklin, General Motors Corp., Detroit 2, Mich	1928
Keyes, Frederick George, Massachusetts Institute of Technology, Cambridge 39, Mass	1930
Kidder, Alfred Vincent, 10 Frisbie Pl., Cambridge 38, Mass	1936
King, Arthur Scott, Mount Wilson Observatory, Pasadena 4, Calif	1941
Kirkwood, John Gamble, Baker Laboratory, Cornell University, Ithaca, N. Y	1942
Kistiakowsky, George Bogdan, Postoffice Box 5370, Los Angeles 55, Calif	1939
Knopf, Adolph, Yale University, New Haven, Conn	1931

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Kofoid, Charles Atwood, University of California, Berkeley 4, Calif	1922
Kraus, Charles August, Brown University, Providence 12, R. I	1925
Kroeber, Alfred L., University of California, Berkeley 4, Calif	1928
Kunkel, Louis Otto, Rockefeller Institute for Medical Research, Priceton, N. J	1932
Lamb, Arthur Becket, Chemical Laboratory, Harvard University, Cambridge 38, Mass	1924
Langmuir, Irving, General Electric Co., Schenectady 5, N. Y	1918
Larsen, Esper S., Jr., Geological Museum, Oxford St., Cambridge 38, Mass	1944
Lashley, Karl Spencer, Yerkes Laboratories of Primate Biology, Orange Park, Fla	1930
Latimer, Wendell Mitchell, University of California, Berkeley 4, Calif	1940
Lauritsen, Charles Christian, California Institute of Technology, Pasadena, 4, Calif	1941
Lawrence, Ernest Orlando, Radiation Laboratory, University of California, Berkeley 4, Calif	1934
Lawson, Andrew Cowper, University of California, Berkeley 4, Calif	1924
Lefschetz, Solomon, 129 Broadmead St., Princeton, N. J	1925
Leith, Charles Kenneth, University of Wisconsin, Madison 6, Wis	1920
Leuschner, Armin Otto, Students' Observatory, University of California Berkeley 4, Calif	1913
Lewis, Warren Harmon, the Wistar Institute of Anatomy and Biology, Philadelphia 4, Pa	1936
Lewis Warren Kendall, Massachusetts Institute of Technology, Cambridge 39, Mass	1938
Lillie, Frank Rattray, 5801 Kenwood Ave., Chicago 37, Ill	1915
Lind, Samuel Colville, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1930
Loeb, Leo, 40 Crestwood Drive, St. Louis 5, Mo	1937
Longcope, Warfield Theobald, Johns Hopkins Hospital, Baltimore 5, Md	1943
Longwell, Chester Ray, Kirtland Hall, Yale University, New Haven, Conn	1935
Loomis, Alfred Lee, the Loomis Laboratory, The Tower, Tuxedo Park, N. Y	1941
Lowie, Robert Harry, University of California, Berkeley 4, Calif	1931
Lyman, Theodore, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1917
McClintock, Barbara, Carnegie Institution, Cold Spring Harbor, Long Island, N. Y	1944
McClung, Clarence Erwin, University of Pennsylvania, Philadelphia 4, Pa	1920
McCollum, Elmer Verner, School of Hygiene and Public Health, 615 North Wolfe St., Baltimore 5, Md	1920
MacInnes, Duncan Arthur, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1937
MacNider, William deBerniere, University of North Carolina, Chapel Hill, N. C	1938
Macelwane, James Bernard, S. J., 221 North Grand Blvd., St. Louis 3, Mo	1944
Mark, Edward Laurens, 109 Irving St., Cambridge 38, Mass	1903
Marshall, Eli Kennerly, Jr., School of Medicine, Johns Hopkins University, 710 North Washington St., Baltimore 5, Md	1943
Marvel, Carl Shipp, Department of Chemistry, University of Illinois, Urbana, Ill	1938
Mason, Max, California Institute of Technology, Pasadena 4, Calif	1923
Maynard, Leonard Amby, School of Nutrition, Cornell University, Ithaca, N. Y	1944
Mead, Warren Judson, Massachusetts Institute of Technology, Cambridge 39, Mass	1939
Mendenhall, Walter Curran, 9 East Lenox St., Chevy Chase 15, Md	1932
Merica, Paul Dyer, 67 Wall St., New York 5, N. Y	1942
Merriam, John Campbell, care of Department of Geological Sciences, California Institute of Technology, Pasadena 4, Calif	1918
Merrill, Elmer Drew, Arnold Aboretum, Jamaica Plain, Mass	1923
Merrill, Paul Willard, Mount Wilson Observatory, Pasadena 4, Calif	1929
Merritt, Ernest George, 1 Grove Place, Ithaca, N. Y	1914

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Meyer, Karl Friederich, George Williams Hooper Foundation, University of California Medical Center, San Francisco 22, Calif	1940
Michaelis, Leonor, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1943
Midgley, Thomas, Jr., Worthington, Ohio	1942
Miles, Walter Richard, Yale University School of Medicine, 333 Cedar St., New Haven, Conn	1933
Miller, George Abram, 1203 West Illinois St., Urbana, Ill	1921
Millikan, Robert Andrews, California Institute of Technology, Pasadena 4, Calif	1915
Minot, George Richards, Thorndike Memorial Laboratory, Boston City Hospital, Boston 18, Mass	1937
Mitchell, Samuel Alfred, Leander McCormick Observatory, University Station, Charlottesville, Va	1933
Moore, Carl Richard, University of Chicago, Chicago 37, Ill	1944
Moore, Joseph Haines, Lick Observatory, Mount Hamilton, Calif	1931
Moore, Robert Lee, University of Texas, Austin 12, Tex	1931
Morgan, Thomas Hunt, California Institute of Technology, Pasadena 4, Calif	1909
Morse, Harold Marston, Institute for Advanced Study, Princeton, N. J	1932
Moulton, Forest Ray, Smithsonian Institution, Washington 25, D. C	1910
Muller, Hermann Joseph, Department of Biology, Amherst College, Amherst, Mass	1931
Mulliken, Robert Sanderson, University of Chicago, Chicago 37, Ill	1936
Murnaghan, Francis Dominic, Johns Hopkins University, Baltimore 18, Md	1942
Murphy, James Bumgardner, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1940
Neumann, John von, Institute for Advanced Study, Princeton, N. J	1937
Nicholson, Seth Barnes, Mount Wilson Observatory, Pasadena 4, Calif	1937
Northrop, John Howard, Rockefeller Institute for Medical Research, Princeton, N. J	1934
Novy, Frederick George, 721 Forest Ave., Ann Arbor, Mich	1924
Noyes, William Albert, Jr., Department of Chemistry, University of Rochester, Rochester 3, N. Y	1943
Opie, Eugene Lindsay, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1923
Oppenheimer, J. Robert, University of California, Berkeley 4, Calif	1941
Osterhout, Winthrop John Vanleuven, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1919
Painter, Theophilus Shickel, University of Texas, Austin 12, Tex	1938
Palache, Charles, Harvard University, Cambridge 38, Mass	1934
Parker, George Howard, Harvard Biological Laboratories, Divinity Ave., Cambridge 38, Mass	1913
Patterson, John Thomas, University of Texas, Austin 12, Tex	1941
Pauling, Linus, California Institute of Technology, Pasadena 4, Calif	1933
Pierce, George Washington, Cruft Laboratory, Harvard University, Cambridge 38, Mass	1920
Pillsbury, Walter Bowers, University of Michigan, Ann Arbor, Mich	1925
Rabi, Isidor Isaac, 97 Avon Hill St., Cambridge 20, Mass	1940
Richards, Alfred Newton, 291 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Pa	1927
Riddle, Oscar, Department of Genetics, Carnegie Institution of Washington, Cold Spring Harbor, Long Island, N. Y	1939
Ritt, Joseph Fels, Columbia University, New York 27, N. Y	1933
Rivers, Thomas Milton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Robbins, William Jacob, New York Botanical Garden, Bronx Park (Fordham Station,) New York 58, N. Y	1940
Robertson, Oswald Hope, Department of Medicine, University of Chicago, Chicago 37, Ill	1943
Rodebush, Worth Huff, University of Illinois, Urbana, Ill	1938
Romer, Alfred Sherwood, Museum of Comparative Zoology, Oxford St., Cambridge 38, Mass	1944

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Rose, William Cumming, University of Illinois, Urbana, Ill	1936
Ross, Frank Elmore, Mount Wilson Observatory, Pasadena 4, Calif	1930
Rossby, Carl-Gustaf Arvid, Institute of Meteorology, University of Chicago, Chicago 37, Ill	1943
Rous, Francis Peyton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1927
Ruedemann, Rudolf, 161 Dana Ave., Albany 3, N. Y	1928
Russell, Henry Norris, Princeton University, Princeton, N. J	1918
Sabin, Florence Rena, 1333 East 10th Ave., Denver 3, Colo	1925
Saunders, Frederick Albert, South Hadley, Mass	1925
Sax, Karl, Harvard University, Cambridge 38, Mass	1941
Schultz, Adolph Hans, Johns Hopkins Medical School, Baltimore 5, Md	1939
Scott, William Berryman, Princeton University, Princeton, N. J	1906
Seares, Frederick Hanley, Mount Wilson Observatory, Pasadena 4, Calif	1919
Seashore, Carl Emil, State University of Iowa, Iowa City Iowa	1922
Shaffer, Philip Anderson, Washington University Medical School, St. Louis, 10, Mo	1928
Shapley, Harlow, Harvard College Observatory, Cambridge 38, Mass	1924
Sherman, Henry Clapp, Columbia University, New York 27, N. Y	1933
Shope, Richard Edwin, War Disease Control Station, Box 128 (Haute Ville P. O.), Quebec, Quebec, Canada	1940
Simpson, George Gaylord, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1941
Sinnott, Edmund Ware, Osborn Botanical Laboratory, Yale University, New Haven, Conn	1936
Slater, John Clarke, Massachusetts Institute of Technology, Cambridge 39, Mass	1932
Slepian, Joseph, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa	1941
Slichter, Louis Byrne, 212 Astrophysics Bldg., California Institute of Technology, Pasadena 4, Calif	1944
Slipher, Vesto Melvin, Lowell Observatory, Flagstaff, Ariz	1921
Small, Lyndon Frederick, National Institute of Health, Bethesda 14, M	1941
Smith, Lee Irvin, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1944
Smith, Philip Edward, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1939
Stadler, Lewis John, University of Missouri, Columbia, Mo	1938
Stakman, Elvin Charles, University Farm, St. Paul 8, Minn	1934
Stanley, Wendell Meredith, Rockefeller Institute for Medical Research, Princeton, N. J	1941
Stebbins, Joel, Washburn Observatory, Madison 6, Wis	1920
Stewart, George Walter, State University of Iowa, Iowa City, Iowa	1938
Stone, Calvin Perry, Stanford University, Stanford University, Calif	1943
Stone, Marshall Harvey, Harvard University, Cambridge 38, Mass	1938
Stratton, George Malcolm, University of Califoria, Berkeley 4, Calif	1928
Streeter, George Linius, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1931
Struve, Otto, Yerkes Observatory, Williams Bay, Wis	1937
Sturtevant, Alfred Henry, California Institute of Technology, Pasadena 4, Calif	1930
Sumner, Francis Bertody, Scripps Institution of Oceanography, La Jolla, Calif	1937
Swanton, John Reed, 22 George St., Newton 58, Mass	1932
Taliaferro, William Hay, University of Chicago, Chicago 37, Ill	1940
Tate, John Torrence, University of Minnesota, Minneapolis 14, Minn	1942
Taylor, Charles Vincent, Stanford University, Stanford University, Calif	1943
Terman, Lewis Madison, 761 Dolores, Stanford University, Calif	1928
Thom, Charles, Port Jefferson, N. Y	1937
Thomas, Tracy Yerkes, Swain Hall, Indiana University, Bloomington, Ind	1941
Thorndike, Edward Lee, Teachers College, Columbia University, New York 27, N. Y	1917
Thurstone, Louis Leon, University of Chicago, Chicago 37, Ill	1938

6. *Members of the National Academy of Sciences*—Continued

July 1, 1944—Continued

	Elected
Timoshenko, Stephen Prokop, Room 262, Engineering Bldg., Stanford, University, Calif	1940
Tolman, Edward Chace, Department of Psychology, University of California, Berkeley 4, Calif	1937
Tolman, Richard Chace, California Institute of Technology, Pasadena 4, Calif	1923
Tozzer, Alfred Marston, Peabody Museum, Harvard University, Cambridge 38, Mass	1942
Trelease, William, University of Illinois, Urbana, Ill	1902
Trumpler, Robert Julius, Berkeley Astronomical Department, University of California, Berkeley 4, Calif	1932
Tyzzer, Ernest Edward, Harvard University Medical School, Boston 15, Mass	1942
Urey, Harold Clayton, Columbia University, New York 27, N. Y	1935
Vandiver, Harry Shultz, University of Texas, Austin 12, Tex	1934
Van Slyke, Donald Dexter, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1921
Van Vleck, John Hasbrouck, Harvard University, Cambridge 38, Mass	1935
Vaughan, Thomas Wayland, 3333 P St., Washington 7, D. C	1921
Veblen, Oswald, The Institute for Advanced Study, Princeton, N. J	1919
Vickery, Hubert Bradford, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1943
von Karman, Theodore, California Institute of Technology, Pasadena 4, Calif	1938
Waksman, Selman Abraham, Agricultural Experiment Station, New Brunswick, N. J	1942
Walsh, Joseph Leonard, Harvard University, Cambridge 38, Mass	1936
Webster, David Locke, Physics Department, room 385, Stanford University, Stanford University, Calif	1923
Wever, Ernest Glen, Princeton University, Princeton, N. J	1940
Weyl, Claus Hugo Hermann, Institute for Advanced Study, Princeton, N. J	1940
Whipple, George Hoyt, School of Medicine of the University of Rochester, Crittenden Blvd., Rochester 7, N. Y	1929
Whitehead, John Boswell, Johns Hopkins University, Baltimore 18, Md	1932
Whitney, Willis Rodney, General Electric Co., Schenectady 5, N. Y	1917
Willis, Bailey, Box 1365, Stanford University, Calif	1920
Wilson, Edwin Bidwell, 55 Shattuck St., Boston 15, Mass	1919
Wislocki, George Bernays, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1941
Wissler, Clark, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1929
Wolbach, Simeon Burt, Harvard University Medical School, 25 Shattuck St., Boston 15, Mass	1938
Wood, Robert Williams, Johns Hopkins University, Baltimore 18, Md	1912
Woodruff, Lorande Loss, Yale University, New Haven, Conn	1924
Woodworth, Robert Sessions, Columbia University, New York 27, N. Y	1921
Wright, Frederick Eugene, 2134 Wyoming Ave., Washington 8, D. C	1923
Wright, Orville, 15 North Broadway, Dayton 7, Ohio	1936
Wright, Sewall Green, University of Chicago, Chicago 37, Ill	1934
Wright, William Hammond, Lick Observatory, Mount Hamilton, Calif	1922
Yerkes, Robert Mearns, Yale School of Medicine, 333 Cedar St., New Haven, Conn	1923
Yost, Don Merlin, California Institute of Technology, Pasadena 4, Calif	1944
Zariski, Oscar, Johns Hopkins University, Department of Mathematics, Baltimore 18, Md	1944
Zworykin, Vladimir Kosma, RCA Laboratories, Princeton, N. J	1943

MEMBERS EMERITI

Benedict, Francis Gano, Machiasport, Maine	1914
Dickson, Leonard Eugene, University of Chicago, Chicago 37, Ill	1913
Howard, Leland Ossian, Bureau of Entomology, U. S. Department of Agriculture, Washington 25, D. C	1916

6. *Members of the National Academy of Sciences*—Continued

FOREIGN ASSOCIATES OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1944

	Elected
Adrian, Edgar Douglas, Trinity College, Cambridge, England	1941
Bailey, Sir Edward Battersby, Geological Survey and Museum, Exhibition Rd., London, S. W. 7, England	1944
Barcroft, Sir Joseph, Unit of Animal Physiology, Department of Physiology, The University, Cambridge, England	1939
Bjerknes, V. F. K., University, Oslo, Norway	1934
Bohr, Niels, University of Copenhagen, Copenhagen, Denmark	1925
Bordet, Jules, Pasteur Institute, Rue du Remorqueur, 28, Brussels, Belgium	1935
Bower, Frederick Orpen, 2 the Crescent, Ripon, Yorks, England	1929
Caso, Alfonso, Instituto Nacional de Anthropologia e Historia, Zacatecas 218, Mexico D. F., Mexico	1943
Dale, Sir Henry Hallett, the Royal Institution, 21 Albermarle St., London, W. 1, England	1940
Debye, Peter, Baker Laboratory, Cornell University, Ithaca, N. Y. (U. S. A.)	1931
Deslandres, Henri, 5 rue de Teheran, Paris 8, France	1913
Eddington, Sir Arthur Stanley, the Observatory, University of Cambridge, Cambridge, England	1925
Einstein, Albert, Institute for Advanced Study, Princeton, N. J. (U. S. A.)	1922
Hadamard, Jacques, Delegation of French Provisional Government, 1 Carlton Gardens, London, S. W. 1, England	1926
Hardy, Godfrey Harold, Trinity College, Cambridge, England	1927
Hill, Archibald Vivian, 16 Bishopswood Road, Highgate, London, N. 6, England	1941
Hill, James Peter, Kanimbla, Dollis Ave., Finchley, London, N. 3, England	1940
Hopkins, Sir Frederick Gowland, Saxmeadham, 71, Grange Road, Cambridge, England	1924
Houssay, Bernardo Alberto, Viamonte 2790, Buenos Aires, Argentina	1940
Janet, Pierre, 54, rue de Varenne, Paris, France	1938
Jones, Sir Harold Spencer, Royal Observatory, Greenwich, London, S. E. 10, England	1943
Keith, Sir Arthur, Buckston Browne Farm, Downe, Farnborough, Kent, England	1941
Krogh, August, Universitetets Zoofysiologiske Laboratorium, Juliane Maries Vej 32, Copenhagen, Denmark	1937
Lacroix, F. Alfred A., 23, rue Jean-Dolent, Paris XIV, France	1920
Levi, Giuseppe, 1, rue des Bonnes Villes, Liege, Belgium	1940
Lim, Robert K. S., Peiping Union Medical College, Peiping, China	1942
Penck, Albrecht, Meierotto-Strasse 511, Berlin, W. 15, Germany	1909
Planck, Max, Wangenheimstrasse 21, Berlin-Grunewald, Germany	1926
Robinson, Sir Robert, Dyson Perrins Laboratory, South Parks Road, Oxford, England	1934
Ruzicka, Leopold, Department of Organic Chemistry, Institute of Technology, Zurich, Switzerland	1944
Sherrington, Sir Charles Scott, Gonville and Caius College, Cambridge, England	1924
Sommerfeld, Arnold, Dunant-Str. 6, Munich 23, Germany	1929
Southwell, Richard Vynne, Imperial College of Science and Technology, South Kensington, London, S. W. 7, England	1943
Spearman, Charles Edward, 67 Portland Court, London, W. 1., England	1943
Thompson, Sir D'Arcy Wentworth, Department of Natural History, University of St. Andrews, St. Andrews, Fife, Scotland	1943
Vallee-Posssin, C. de la, University of Louvain, Louvain, Belgium	1929
Van der Bijl, Hendrik Johannes, University of Pretoria, Pretoria, South Africa	1943
Vening Meinesz, Felix Andries, University of Utrecht, Utrecht, the Netherlands	1939
Watson, David Meredith Seares, Department of Zoology and Comparative Anatomy, University College, University of London, London, W. C. 1, England	1938
Wieland, Heinrich, Sophienstrasse 9, Munich, 2 N. W., Germany	1932

7. MEDALISTS OF THE NATIONAL ACADEMY

	Medal	Year
Abbe, Cleveland[1]	Welfare	1916
Abbot, Charles Greeley	Draper	1910
Abel, Othenio[2]	Elliot	1920
Adams, Walter Sidney	Draper	1918
Albert Ier, Prince of Monaco[1,2]	Agassiz	1918
Allen, Edgar Johnson[1,2]	do	1937
Auwers, G. F. J. Arthur[1]	Watson	1891
Barnett, Samuel Jackson[2]	Comstock	1918
Bather, Francis Arthur[1,2]	Thompson	1932
Becquerel, Henri[1]	Barnard	1905
Beebe, William[2]	Elliot	1918
Bigelow, Henry Bryant	Agassiz	1931
Bjerknes, Vilhelm	do	1926
Black, Davidson[1,2]	Elliot	1931
Bohr, Niels	Barnard	1925
Bowen, Ira Sprague	Draper	1942
Bragg, Sir William Henry[1,3]	Barnard	1914
Do	Carty	1939
Bragg, W. L.[2,3]	Barnard	1914
Breuil, Henri[2]	Elliot	1924
Bridgman, P. W	Comstock	1933
Brown, Ernest William[1]	Watson	1936
Campbell, William Wallace[1]	Draper	1906
Cannon, Annie Jump[1,2]	do	1931
Canu, Ferdinand[1,2]	Elliot	1923
Carty, John J.[1]	Carty	1932
Chandler, Seth Carlo[1]	Watson	1894
Chapin, Charles V.[1,2]	Welfare	1928
Chapin, James P.[2]	Elliot	1932
Chapman, Frank Michler	do	1917
Charlier, C. V. L.[2]	Watson	1924
Clarke, John Mason[1]	Thompson	1925
Coghill, George Ellett[1]	Elliot	1930
Colbert, Edwin H.[2]	do	1935
Conklin, Edwin Grant	Carty	1943
Cumming, Hugh S.[2]	Welfare	1935
Curie, Irène[2,4]	Barnard	1940
Davisson, C. J	Comstock	1928
Dean, Bashford[1,2]	Elliot	1921
Defant, Albert[2]	Agassiz	1932
de Sitter, Willem[1]	Watson	1929
Deslandres, Henri	Draper	1913
Duane, William[1]	Comstock	1923
Eddington, Sir Arthur Stanley.	Draper	1924
Einstein, Albert	Barnard	1921
Ekman, V. Walfrid[2]	Agassiz	1928
Fabry, Charles[2]	Draper	1919
Fairchild, David[2]	Welfare	1933
Fowler, Alfred[1]	Draper	1920
Gardiner, J. Stanley[2]	Agassiz	1929
Gill, Sir David[1]	Watson	1899
Goethals, George Washington.[1,2]	Welfare	1914
Gorgas, William Crawford[1,2]	do	1914
Gould, Benjamin Apthorp[1]	Watson	1887
Grabau, Amadeus William[2]	Thompson	1936
Gran, Haakon Hasberg[2]	Agassiz	1934
Hale, George Ellery[1]	Draper	1904
Heisenberg, Werner[2]	Barnard	1930
Helland-Hansen, Bjorn[2]	Agassiz	1933
Hjort, Johan[2]	do	1913
Hoover, Herbert Clark	Welfare	1920
Hoover, John Edgar[2]	do	1939
Hubble, Edwin	Barnard	1935
Huggins, Sir William[1]	Draper	1901
Iselin, Columbus, II[2]	Agassiz	1942
Joliot, F.[2,4]	Barnard	1940
Kapteyn, J. C.[1]	Watson	1913
Keeler, James Edward[1]	Draper	1899
Knudsen, Martin[2]	Agassiz	1936
Langley, Samuel Pierpont[1]	Draper	1886
Lawrence, Ernest Orlando	Comstock	1938
Leuschner, Armin Otto	Watson	1915
Lillie, Frank Rattray	Agassiz	1939
Lull, Richard Swann[2]	Elliot	1933
Margerie, Emmanuel de[2]	Thompson	1923
Mather, Stephen Tyng[1,2]	Welfare	1930
Mees, C. E. Kenneth[2]	Draper	1936
Merrill, George Perkins[1]	Smith	1922
Michelson, Albert Abraham[1]	Draper	1916
Millikan, Robert Andrews	Comstock	1913
Murphy, Robert Cushman[2]	Elliot	1936
Newton, Hubert Anson[1]	Smith	1888
Osborn, Henry Fairchild[1]	Elliot	1929
Painter, Theophilus Shickel	do	1934
Park, William Hallock[1,2]	Welfare	1932
Parker, George Howard	Elliot	1937
Pettersson, Otto Sven[1,2]	Agassiz	1924
Pickering, Edward Charles[1]	Draper	1888
Pinchot, Gifford[2]	Welfare	1916
Plaskett, John Stanley[1,2]	Draper	1934
Rayleigh, Lord[1]	Barnard	1895
Ridgway, Robert[1]	Elliot	1919
Rockefeller, John Davison, Jr.[2]	Welfare	1943
Röntgen, Wilhelm Conrad[1,2]	Barnard	1900
Rose, Wickliffe[1,2]	Welfare	1931
Rowland, Henry Augustus[1]	Draper	1890
Russell, F. F.[2]	Welfare	1935
Russell, Henry Norris	Draper	1922
Rutherford, Baron: Ernest Rutherford.[1]	Barnard	1909
Schmidt, Johannes[1,2]	Agassiz	1930
Schoenfeld, Ed.[1,2]	Watson	1889
Schuchert, Charles[1]	Thompson	1934
Scott, W. B	do	1930
Seton, Ernest Thompson[2]	Elliot	1928
Shapley, Harlow	Draper	1926
Sigsbee, Rear Adm. Charles Dwight, U. S. Navy[1,2]	Agassiz	1920
Slipher, V. M	Draper	1932
Smith, James Perrin[1]	Thompson	1928
Stebbins, Joel	Draper	1915
Stensiö, Erik A.: Son[2]	Elliot	1927
Stiles, Charles Wardell[1,2]	Welfare	1921
Stratton, Samuel Wesley[1]	do	1917
Sverdrup, Harald Ulrik[2]	Agassiz	1939
Ulrich, Edward Oscar[1]	Thompson	1930
Vaughan, T. Wayland	Agassiz	1935
Vogel, Herman Karl[1]	Draper	1893
Vollmer, August[2]	Welfare	1934
Walcott, Charles Doolittle[1]	Thompson	1921
Watson, David Meredith Seares.	do	1941
Weber, Max[1,2]	Agassiz	1927
Westergaard, A. H.[1,2]	Walcott	1939
Wheeler, William Morton[1]	Elliot	1922
White, David[1]	Thompson	1931
Do	Walcott	1934
Whitney, Willis Rodney	Welfare	1937
Wilson, Edmund Beecher[1]	Elliot	1925
Do	Carty	1936
Wood, Robert Williams	Draper	1940
Woodward, Sir Arthur Smith[2]	Thompson	1942
Wright, William Hammond	Draper	1928
Zeeman, P.[2]	do	1921

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[1] Deceased.

[2] Not member or foreign associate of the Academy.

[3] Joint award to Sir William Bragg and W. L. Bragg.

[4] Joint award to Irène Curie and F. Joliot.

8. PRESIDENTS OF THE ACADEMY

Alexander Dallas Bache	1863–67	William Henry Welch	1913–17
Joseph Henry	1868–78	Charles Doolittle Walcott	1917–23
William Barton Rogers	1879–82	Albert Abraham Michelson	1923–27
Othniel Charles Marsh	1883–95	Thomas Hunt Morgan	1927–31
Wolcott Gibbs	1895–1900	William Wallace Campbell	1931–35
Alexander Agassiz	1901–07	Frank Rattray Lillie	1935–39
Ira Remsen	1907–13	Frank Baldwin Jewett	1939—

9. DECEASED MEMBERS AND FOREIGN ASSOCIATES

DECEASED MEMBERS

	Date of election	Date of death
Abbe, Cleveland	1878	Oct. 28, 1916
Abbot, Henry L	1872	Oct. 1, 1927
Abel, John Jacob	1912 [1]	May 26, 1938
Agassiz, Alexander	1866	Mar. 27, 1910
Agassiz, Louis	(2)	Dec. 14, 1873
Alexander, J. H	(2)	Mar. 2, 1867
Alexander, Stephen	(2)	June 25, 1883
Allen, J. A	1876	Aug 29, 1921
Ames, Joseph Sweetman [3]	1909	June 24, 1943
Armsby, H. P	1920	Oct. 19, 1921
Atkinson, George Francis	1918 [1]	Nov. 14, 1918
Bache, Alexander Dallas	(2)	Feb. 17, 1867
Baekeland, Leo Henrik	1936 [1]	Feb 23, 1944
Bailey, Solon Irving	1923	June 5, 1931
Baird, Spencer F	1864	Aug. 19, 1887
Barker, George F	1876 [1]	May 24, 1910
Barnard, E. E	1911	Feb. 6, 1923
Barnard, F. A. P	(2)	Apr. 27, 1889
Barnard, J. G	(2)	May 14, 1882
Barrell, Joseph	1919	May 4, 1919
Bartlett, W. H. C	(2)	Feb. 11, 1893
Barus, Carl	1892	Sept 20, 1935
Becker, George Ferdinand	1901	Apr. 20, 1919
Beecher, Charles Emerson	1899	Feb. 14, 1904
Bell, A. Graham	1883	Aug. 2, 1922
Benedict, Stanley Rossiter	1924 [1]	Dec. 21, 1936
Billings, John S	1883	Mar. 11, 1913
Boas, Franz	1900 [1]	Dec. 21, 1942
Bocher, Maxime	1909 [1]	Sept. 12, 1918
Boltwood, B. B	1911	Aug. 14, 1927
Boss, Lewis	1889	Oct. 5, 1912
Bowditch, Henry P	1887	Mar. 13, 1911
Bowie, William	1927 [1]	Aug. 28, 1940
Branner, J. C	1905	Mar. 1, 1922
Breasted, James Henry	1923	Dec. 2, 1935
Brewer, William H	1880	Nov. 2, 1910
Bridges, Calvin Blackman	1937	Dec. 27, 1938
Britton, Nathaniel L	1914	June 25, 1934
Brooks, William Keith	1884	Nov. 12, 1908
Brown, Ernest William	1923	July 22, 1938
Brown-Sequard, Charles E	1868	Apr. 2, 1894
Brush, George Jarvis	1868	Feb. 6, 1912
Bumstead, Henry A	1913	Dec. 31, 1920
Burgess, George K	1922 [1]	July 2, 1932
Calkins, Gary Nathan	1919 [1]	Jan. 4, 1943
Campbell, William Wallace	1902 [1]	June 14, 1938
Carothers, Wallace H	1936	Apr 29, 1937
Carty, John J	1917	Dec. 27, 1932
Casey, Thomas L	1890	Mar. 25, 1896
Caswell, Alexis	(2)	Jan. 8, 1877
Cattell, James McKeen	1901 [1]	Jan. 20, 1944
Chamberlin, Thomas Chrowder	1903	Nov. 15, 1928
Chandler, Charles Frederick	1874	Aug. 25, 1925
Chandler, Seth Carlo	1888 [1]	Dec. 31, 1913
Chauvenet, William	(2)	Dec. 13, 1870
Chittenden, Russell Henry	1890 [1]	Dec. 26, 1943
Clark, Henry James	1872	July 1, 1873
Clark, William B	1908	July 27, 1913
Clarke, Frank Wigglesworth	1909	May 23, 1931
Clarke, John M	1909	May 29, 1925
Clinton, George Perkins	1930	Aug. 13, 1937
Coffin, James H	1869	Feb. 6, 1873
Coffin, J. H. C	(2)	Jan. 8, 1890
Coghill, George Ellett	1935	July 23, 1941
Comstock, Cyrus B	1884	May 29, 1910
Comstock, George C	1899	May 11, 1934
Cook, George H	1887	Sept. 22, 1889
Cooke, Josiah P	1872	Sept. 3, 1894
Cope, Edward D	1872	Apr. 12, 1897
Coues, Elliott	1877	Dec. 25, 1899
Coulter, John Merle	1909	Dec 23, 1928
Councilman, William T.[4]	1904	May 27, 1933
Crafts, James M	1872	June 21, 1917
Curtis, Heber Doust	1919	Jan. 9, 1942
Cushing, Harvey (Williams)	1917	Oct. 7, 1939
Dall, William H	1897 [1]	Mar. 27, 1927
Dalton, J. C	1864	Feb. 2, 1889
Dana, E. S	1884	June 16, 1935
Dana, James D	(2)	Apr. 14, 1895
Davenport, Charles Benedict	1912 [1]	Feb. 18, 1944
Davidson, George	1874	Dec. 2, 1911
Davis, Charles H	(2)	Feb. 18, 1877
Davis, William M	1904 [1]	Feb. 5, 1934
Dodge, Raymond [5]	1924 [1]	Apr. 8, 1942
Donaldson, Henry Herbert	1914	Jan. 23, 1938
Draper, Henry	1877	Nov. 20, 1882
Draper, John W	1877	Jan. 4, 1882
Duane, William	1920	Mar. 7, 1935
Dutton, C. E	1884 [1]	Jan. 4, 1912
Eads, James B	1872	Mar. 8, 1887
East, Edward Murray	1925 [1]	Nov. 9, 1938
Edison, Thomas A	1927	Oct. 18, 1931
Eigenmann, Carl H	1923	Apr. 24, 1927
Elkin, W. L	1895	May 30, 1933
Emmet, William LeRoy	1921	Sept. 26, 1941
Emmons, Samuel F	1892	Mar. 28, 1911
Engelmann, George	(2)	Feb. 4, 1884
Ewing, James	1935 [1]	May 16, 1943
Farlow, W. G	1879	June 3, 1919
Ferrell, William	1868	Sept. 18, 1891
Fewkes, Jesse Walter	1914	May 31, 1930
Folin, Otto	1916 [1]	Oct. 25, 1934
Forbes, Stephen Alfred	1918	Mar. 13, 1930
Franklin, F. C	1914 [1]	Feb. 4, 1937
Frazer, John Fries	(2)	Oct. 12, 1872
Freeman, John R	1918	Oct. 6, 1932
Frost, Edwin Brant	1908	May 14, 1935
Gabb, William M	1876	May 30, 1878
Gay, Frederick Parker	1939 [1]	July 14, 1939
Genth, F. A	1872	Feb. 2, 1893
Gherardi, Bancroft	1933 [1]	Aug. 14, 1941
Gibbs, Josiah Willard	1879	Apr. 28, 1903
Gibbs, Wolcott	(2)	Dec. 9, 1908
Gilbert, Grove Karl	1883	May 1, 1918
Gill, Theodore Nicholas	1873	Sept. 25, 1914
Gilliss, James Melville	(2)	Feb. 9, 1865
Gooch, Frank Austin	1897	Aug. 12, 1929
Goodale, G. L	1890	Apr 15, 1923
Goode, G. Brown	1888	Sept. 6, 1896
Gortner, Ross Aiken	1935	Sept. 30, 1942
Gould, Augustus A	(2)	Sept. 15, 1866
Gould, Benjamin A	(2)	Nov. 26, 1896
Gray, Asa	(2)	Jan. 30, 1888
Guyot, Arnold	(2)	Feb. 8, 1884
Hadley, James	1872	Nov. 14, 1872

See footnotes at end of table, p. 114.

9. *Deceased Members and Foreign Associates*—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death
Hague, Arnold	1885	May 15, 1917
Haldeman, S. S	1876	Sept. 20, 1880
Hale, George Ellery	1902	Feb. 21, 1938
Hall, Asaph	1875	Nov. 22, 1907
Hall, Edwin Herbert	1911	Nov. 20, 1938
Hall, G. Stanley	1915	Apr. 24, 1924
Hall, James	(2)	Aug. 7, 1898
Halsted, W. S	1917	Sept. 7, 1922
Hastings, C. S	1889	Jan. 29, 1932
Hayden, F. V	1873	Dec. 22, 1887
Hayford, John F	1911	Mar. 10, 1925
Henderson, Lawrence Joseph	1919	Feb. 10, 1942
Henderson, Yandell	1923[1]	Feb. 18, 1944
Henry, Joseph	(2)	May 13, 1878
Hilgard, Eugene W	1872	Jan. 8, 1916
Hilgard, Julius E	(2)	May 9, 1890
Hill, George William	1874	Apr. 16, 1914
Hill, Henry B	1883	Apr. 6, 1903
Hillebrand, W. F	1908	Feb. 7, 1925
Hitchcock, Edward	(2)	Feb. 27, 1864
Holbrook, J. E	1868	Sept. 8, 1871
Holden, Edward Singleton	1885	Mar. 16, 1914
Holmes, William H.[6]	1905	Apr. 20, 1933
Howe, H. M	1917	May 14, 1922
Howe, Marshall Avery	1923	Dec. 24, 1936
Hrdlička, Aleš	1921[1]	Sept. 5, 1943
Hubbard, J. S	(2)	Aug. 16, 1863
Humphreys, A. A	(2)	Dec. 27, 1883
Hunt, T. Sterry	1873	Feb. 12, 1892
Huntington, G. S	1924	Jan. 5, 1927
Hyatt, Alpheus	1875	Jan. 15, 1902
Iddings, Joseph P	1907[1]	Sept. 8, 1920
Jackson, Charles Loring[7]	1883[1]	Oct. 28, 1935
James, William[8]	1903[1]	Aug. 26, 1910
Johnson, Douglas Wilson	1932[1]	Feb. 24, 1944
Johnson, S. W	1866	July 21, 1909
Jones, Walter	1918	Feb. 28, 1935
Jordan, Edwin Oakes	1936	Sept. 2, 1936
Keeler, J. E	1900	Aug. 12, 1900
Keith, Arthur	1928[1]	Feb. 7, 1944
Kellogg, Vernon Lyman	1930	Aug. 8, 1937
Kemp, James F	1911	Nov. 17, 1926
Kennelly, Arthur Edwin	1921	June 18, 1939
King, Clarence	1876	Dec. 24, 1901
Kirtland, Jared P	1865	Dec. 10, 1877
Kohler, Elmer Peter	1920[1]	May 24, 1938
Landsteiner, Karl	1932[1]	June 26, 1943
Lane, J. Homer	1872	May 3, 1880
Langley, Samuel P	1876	Feb. 27, 1906
Laufer, Berthold	1930	Sept. 13, 1934
Lea, Matthew Carey	1892	Mar. 15, 1897
Le Conte, John	1878	Apr. 29, 1891
Le Conte, John L	(2)	Nov. 15, 1883
Le Conte, Joseph	1875	July 6, 1901
Leidy, Joseph	(2)	Apr. 30, 1891
Lesley, J. Peter	(2)	June 1, 1903
Lesquereux, Leo	1864	Oct. 25, 1889
Levene, Phoebus Aaron Theodor	1916	Sept. 6, 1940
Leverett, Frank	1929	Nov. 15, 1943
Lindgren, Waldemar	1909[1]	Nov. 4, 1939
Loeb, Jacques	1910	Feb. 12, 1924
Longstreth, Miers F	(2)	Dec. 27, 1891
Loomis, Elias	1873	Aug. 15, 1889
Lovering, Joseph	1873	Jan. 18, 1892
Lusk, Graham	1915	July 18, 1932
Lyman, Theodore	1872	Sept. 9, 1897
MacCallum, William George[9]	1921[1]	Feb. 3, 1944
Mahan, D. H	(2)	Sept. 16, 1871
Mall, Franklin P	1907	Nov. 17, 1917
Marsh, G. P	1866	July 23, 1882
Marsh, O. C	1874	Mar. 18, 1899
Mayer, Alfred M	1872	July 13, 1897
Mayor, A. G	1916	June 25, 1922
Mayo-Smith, Richmond	1890	Nov. 11, 1901
Meek, F. B	1869	Dec. 21, 1876
Meigs, M. C	1865	Jan. 2, 1892
Meltzer, Samuel James	1912	Nov. 8, 1920
Mendel, Lafayette B.[10]	1913	Dec. 9, 1935
Mendenhall, Charles Elwood	1918	Aug. 18, 1935
Mendenhall, T. C	1887	Mar. 22, 1924
Merriam, Clinton Hart	1902[1]	Mar. 19, 1942
Merrill, George Perkins	1922	Aug. 15, 1929
Michael, Arthur	1889[1]	Feb. 8, 1942
Michelson, A. A	1888	May 9, 1931
Miller, Dayton Clarence	1921	Feb. 22, 1941
Minot, Charles Sedgwick	1897	Nov. 19, 1914
Mitchell, Henry	1885	Dec. 1, 1902
Mitchell, Silas Weir	1865[1]	Jan. 4, 1914
Modjeski, Ralph	1925[1]	June 26, 1940
Moore, E. H	1901	Dec. 30, 1932
Morgan, Lewis H	1875	Dec. 17, 1881
Morley, E. W	1897	Feb. 24, 1923
Morse, Edward Sylvester	1876	Dec. 20, 1925
Morse, Harmon N	1907	Sept. 8, 1920
Morton, Henry	1874	May 9, 1902
Nef, John Ulric	1904[1]	Aug. 13, 1915
Newberry, J. S	(2)	Dec. 7, 1892
Newcomb, Simon	1869	July 11, 1909
Newton, H. A	(2)	Aug. 12, 1896
Newton, John	1876	May 1, 1895
Nichols, Edward Leamington	1901	Nov. 10, 1937
Nichols, Ernest Fox	1908	Apr. 29, 1924
Norris, James Flack	1934[1]	Aug. 3, 1940
Norton, William A	1873	Sept. 21, 1883
Noyes, Arthur Amos	1905[1]	June 3, 1936
Noyes, William Albert	1910[1]	Oct. 24, 1941
Oliver, James E	1872	Mar. 27, 1895
Osborn, Henry Fairfield	1900	Nov. 6, 1935
Osborne, Thomas Burr	1910	Jan. 29, 1929
Osgood, William Fogg	1904[1]	July 22, 1943
Packard, A. S	1872	Feb. 14, 1900
Pearl, Raymond	1916	Nov. 17, 1940
Peirce, Benjamin[11]	(1 2)	Oct. 6, 1880
Peirce, Benjamin Osgood	1906	Jan. 14, 1915
Peirce, Charles S. S	1876[1]	Apr. 20, 1914
Penfield, Samuel L	1900	Aug. 13, 1904
Peters, C. H. F	1876[1]	July 18, 1890
Pickering, Edward C	1873	Feb. 3, 1919
Pirsson, Louis V	1913[1]	Dec. 8, 1919
Pourtales, L. F	1873	July 19, 1880
Powell, John W	1880	Sept. 23, 1902
Power, Frederick B	1924[1]	Mar. 26, 1927
Prudden, T. Mitchell	1901	Apr. 10, 1924
Pumpelly, Raphael	1872	Aug. 10, 1923
Pupin, Michael Idvorsky	1905	Mar. 12, 1935
Putnam, Frederic W	1885	Aug. 18, 1915
Ransome, F. L	1914	Oct. 6, 1935
Ranson, Stephen Walter	1940[1]	Aug. 30, 1942
Reid, Harry Fielding	1912[1]	June 18, 1944
Remsen, Ira	1882	Mar. 4, 1927
Richards, T. W	1899[1]	Apr. 2, 1928
Richtmyer, Floyd Karker	1932	Nov. 7, 1939
Ridgway, Robert	1917	Mar. 25, 1929
Robinson, B. L	1921	July 27, 1935
Rodgers, John	(2)	May 5, 1882
Rogers, Fairman	(2)	Aug. 22, 1900
Rogers, Robert E.[12]	(2)	Sept. 6, 1884
Rogers, William A	1885	Mar. 1, 1898
Rogers, William B.[13]	(2)	May 30, 1882
Rood, Ogden N	1865	Nov. 12, 1902
Rosa, E. B	1913	May 17, 1921
Rowland, Henry A	1881	Apr. 16, 1901
Royce, Josiah	1906[1]	Sept. 14, 1916
Rutherfurd, Lewis M	(2)	May 30, 1892
Ryan, Harris Joseph	1920	July 3, 1934
Sabine, Wallace C. W	1917	Jan. 10, 1919
St. John, Charles Edward	1924	Apr. 26, 1935
Sapir, Edward	1934[1]	Feb. 4, 1939
Sargent, Charles S	1895	Mar. 22, 1927
Sauveur, Albert	1927	Jan. 26, 1939
Saxton, Joseph	(2)	Oct. 26, 1873

See footnotes at end of table, p. 114.

9. *Deceased Members and Foreign Associates*—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death		Date of election	Date of death
Schlesinger, Frank	1916 [1]	July 10, 1943	Ulrich, Edward Oscar	1917 [1]	Feb. 22, 1944
Schott, Charles A	1872	July 31, 1901	Van Hise, C. R	1902	Nov. 19, 1918
Schuchert, Charles	1910 [1]	Nov. 20, 1942	Van Vleck, Edward Burr	1911 [1]	June 3, 1943
Scudder, Samuel H	1877	May 17, 1911	Vaughan, Victor Clarence	1915 [1]	Nov. 21, 1929
Sellers, William	1873 [1]	Jan. 24, 1905	Verrill, Addison E.[13]	1872	Dec. 10, 1926
Setchell, William Albert	1919	Apr. 4, 1943	Walcott, Charles D	1896 [1]	Feb. 9, 1927
Silliman, Benjamin, Sr	([2])	Nov. 24, 1864	Walker, Francis A	1878	Jan. 5, 1897
Silliman, Benjamin, Jr	([2])	Jan. 14, 1885	Warren, G. K	1876	Aug. 8, 1882
Smith, Alexander	1915	Sept. 8, 1922	Washburn, E. W	1932	Feb. 6, 1934
Smith, Edgar F	1899	May 3, 1928	Washburn, Margaret Floy [16]	1931 [1]	Oct. 29, 1939
Smith, Erwin F	1913	Apr. 6, 1927	Washington, H. S	1921 [1]	Jan. 7, 1934
Smith, J. Lawrence	1872	Oct. 12, 1883	Watson, James C	1868	Nov. 23, 1880
Smith, James Perrin	1925 [1]	Jan. 1, 1931	Watson, Sereno	1889	Mar. 9, 1892
Smith, Sidney Irving [14]	1884	May 6, 1926	Webster, A. G	1903	May 15, 1923
Smith, Theobald	1908	Dec. 10, 1934	Welch, William H	1895	Apr. 30, 1934
Sperry, Elmer A	1925 [1]	June 16, 1930	Wells, Harry Gideon	1925 [1]	Apr. 26, 1943
Squier, George O	1919	Mar. 24, 1934	Wells, Horace L	1903	Dec. 19, 1924
Stejneger, Leonhard	1923 [1]	Feb. 28, 1943	Wheeler, Henry Lord	1909 [1]	Oct. 30, 1914
Stieglitz, Juilius Oscar	1911	Jan. 10, 1937	Wheeler, William Morton	1912	Apr. 19, 1937
Stillwell, Lewis Buckley	1921 [1]	Jan. 19, 1941	White, Charles A	1889	June 29, 1910
Stimpson, William	1868	May 26, 1872	White, David	1912	Feb. 7, 1935
Stockard, Charles Rupert	1922 [1]	Apr. 7, 1939	White, Henry Seely	1915 [1]	May 20, 1943
Story, William Edward	1908 [1]	Apr. 11, 1930	Whitman, C. O	1895	Dec. 6, 1910
Stratton, S. W	1917	Oct. 18, 1931	Whitney, Josiah D.[11]	([12])	Aug. 19, 1896
Strong, Theodore	([2])	Feb. 1, 1869	Whitney, William D.[11]	1865 [1]	June 29, 1894
Sullivant, W. S	1872	Apr. 30, 1873	Wilczynski, E. J.[17]	1919	Sept. 14, 1932
Swain, George F	1923	July 1, 1931	Williston, Samuel W	1915	Aug. 30, 1918
Swasey, Ambrose	1922	June 15, 1937	Wilson, Edmund Beecher	1899	Mar. 3, 1939
Taylor, David Watson	1918	July 28, 1940	Wilson, Henry Van Peters	1927 [1]	Jan. 4, 1939
Tennent, David Hilt	1929 [1]	Jan. 14, 1941	Winlock, Joseph	([2])	June 11, 1875
Thaxter, Roland	1912	Apr. 22, 1932	Wood, Horatio C	1879 [1]	Jan. 3, 1920
Thomson, Elihu	1907	Mar. 13, 1937	Woodward, J. J	1873	Aug. 17, 1884
Torrey, John	([2])	Mar. 10, 1873	Woodward, Robert S	1896	June 29, 1924
Totten, J. G	([2])	Apr. 22, 1864	Worthen, A. H	1872	May 6, 1888
Trowbridge, Augustus	1919	Mar. 14, 1934	Wright, Arthur Williams	1881	Dec. 19, 1915
Trowbridge, John	1878	Feb. 18, 1923	Wyman, Jeffries	([2])	Sept. 4, 1878
Trowbridge, William P	1872	Aug. 12, 1892	Young, Charles A	1872	Jan. 3, 1904
Trumbull, James H	1872	Aug. 5, 1897	Zinsser, Hans	1924 [1]	Sept. 4, 1940
Tuckerman, Edward	1868	Mar. 15, 1886			

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[1] Biographical Memoirs have not been published.
[2] Charter member, Mar. 3, 1863.
[3] Transferred to roll of members emeriti, 1938.
[4] Transferred to roll of members emeriti, 1929.
[5] Transferred to roll of members emeriti, 1936.
[6] Transferred to roll of members emeriti, 1932.
[7] Transferred to roll of members emeriti in 1933.
[8] Resigned, 1909.
[9] Transferred to roll of members emeriti in 1943.
[10] Transferred to roll of members emeriti in 1935.
[11] Resigned, 1873.
[12] Dropped, 1866; reelected, 1875.
[13] Dropped, 1866; reelected, 1872.
[14] Transferred to roll of members emeriti in 1908.
[15] Transferred to roll of members emeriti in 1924.
[16] Transferred to roll of members emeriti in 1937.
[17] Transferred to roll of members emeriti in 1925.

9. *Deceased Members and Foreign Associates*—Continued

DECEASED FOREIGN ASSOCIATES

Adams, Frank Dawson
Adams, J. C.
Airy, Sir George B.
Argelander, F. W. A.
Arrhenius, S. A.
Auwers, G. F. J. Arthur
Backlund, Oskar
Baer, Karl Ernest von
Baeyer, Adolf von
Barrande, Joachim
Barrois, Charles
Bateson, William
Beaumont, L. Elie de
Becquerel, Henri
Berthelot, M. P. E.
Bertrand, J. L. F.
Boltzmann, Ludwig
Bornet, Edouard
Boussingault, J. B. J. D.
Boveri, Theodor
Bragg, Sir William
Braun, Alexander
Brewster, Sir David
Brøgger, W. C.
Bunsen, Robert W.
Burmeister, C. H. C.
Candolle, Alphonse de
Cayley, Arthur
Chasles, Michel
Chevreul, M. E.
Clausius, Rudolph
Cornu, Alfred
Crookes, Sir William
Darboux, Gaston
Darwin, Sir George Howard
de Sitter, Willem
de Vries, Hugo
Dewar, Sir James
Dove, H. W.
Dumas, J. B.
Dyson, Sir Frank Watson
Ehrlich, Paul
Eijkman, Christian
Engler, Adolph
Faraday, Michael
Fischer, Emil
Forsyth, A. R.
Fowler, Alfred
Geikie, Sir Archibald
Gengenbaur, Karl
Gill, Sir David
Gyldém, Hugo
Goebel, K. E. von
Groth, Paul von
Haber, Fritz
Hadfield, Sir Robert A.
Haldane, John Scott
Hamilton, Sir William Rowan
Heim, Albert
Helmholtz, Baron H. von
Hertwig, Richard
Hilbert, David
Hoff, J. H. van't
Hofmann, A. W.
Hooker, Sir Joseph D.
Huggins, Sir William
Huxley, T. H.
Ibañez, Carlos
Janssen, J.
Jordan, M. E. C.
Joule, James P.
Kapteyn, J. C.
Kekulé, August
Kelvin, Lord
Kirchoff, G. R.
Klein, Felix
Koch, Robert
Kohlrausch, Frederich
Kölliker, Albert von
Kossel, Albrecht
Kronecker, Hugo
Kustner, Karl Friedrich
Lacaze-Duthiers, Henri de
Lankester, Sir E. Ray
Larmor, Sir Joseph
Leuckart, Rudolph
Lie, Sophus
Liebig, Justus von
Lister, Lord
Loewy, Maurice
Lorentz, Hendrik Antoon
Ludwig, K. F. W.
Marconi, Marchese
Marey, E. J.
Mendeléeff, D. I.
Milne-Edwards, Henri
Moissan, Henri
Murchison, Sir Roderick I.
Murray, Sir John
Onnes, Heike Kamerlingh
Oppolzer, Theodore von
Ostwald, Wilhelm
Owen, Sir Richard
Parsons, Sir Charles Algernon
Pasteur, Louis
Pavalov, I. P.
Peters, C. H. F.
Pfeffer, Wilhelm
Picard, Emile
Piano, G. A. A.
Poincaire, Jules Henri
Prain, Sir David
Rammelsberg, C. F.
Ramon y Cajal, Santiago
Ramsay, Sir William
Rayleigh, Lord
Regnault, Victor
Retzius, Gustav
Reymond, Emil Du Bois
Richthofen, F. von
Rosenbusch, Karl Harry Ferdinand
Roux, Wilhelm
Rubner, Max
Rutherford, Baron
Sabatier, Paul
Sachs, Julius von
Schiaparelli, Giovanni
Schneider, Charles Eugene
Schuster, Sir Arthur
Seeliger, Hugo R. von
Sørensen, Søren Peter Lauritz
Spemann, Hans
Stas, Jean Servais
Stokes, Sir George G.
Strasburger, Edouard
Sturve, Otto von
Stumpf, Carl
Suess, Eduard
Sylvester, J. J.
Thomson, Sir Joseph J.
Tisserand, F. F.
Van der Waals, J. D.
Virchow, Rudolph von
Vogel, H. C.
Volterra, Vito
Waldeyer, Wilhelm
Weierstrauss, Karl
Weismann, August
Willstaetter, Richard
Wöhler, Frederich
Wolf, Max F. J. C.
Wundt, Wilhelm
Würtz, Adolph
Zirkel, Ferdinand
Zittell, K. A. R. von

APPENDIX B

NATIONAL RESEARCH COUNCIL

1. EXECUTIVE ORDER ISSUED BY THE PRESIDENT OF THE UNITED STATES, MAY 11, 1918

The National Research Council was organized in 1916 at the request of the President by the National Academy of Sciences, under its congressional charter, as a measure of national preparedness. The work accomplished by the Council in organizing research and in securing cooperation of military and civilian agencies in the solution of military problems demonstrates its capacity for larger service. The National Academy of Sciences is therefore requested to perpetuate the National Research Council, the duties of which shall be as follows:

1. In general, to stimulate research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare.
2. To survey the larger possibilities of science, to formulate comprehensive projects of research, and to develop effective means of utilizing the scientific and technical resources of the country for dealing with these projects.
3. To promote cooperation in research, at home and abroad, in order to secure concentration of effort, minimize duplication, and stimulate progress; but in all cooperative undertakings to give encouragement to individual initiative, as fundamentally important to the advancement of science.
4. To serve as a means of bringing American and foreign investigators into active cooperation with the scientific and technical services of the War and Navy Departments and with those of the civil branches of the Government.
5. To direct the attention of scientific and technical investigators to the present importance of military and industrial problems in connection with the war, and to aid in the solution of these problems by organizing specific researches.
6. To gather and collate scientific and technical information, at home and abroad, in cooperation with governmental and other agencies, and to render such information available to duly accredited persons.

Effective prosecution of the Council's work requires the cordial collaboration of the scientific and technical branches of the Government, both military and civil. To this end representatives of the Government, upon the nomination of the National Academy of Sciences, will be designated by the President as members of the Council, as heretofore, and the heads of the departments immediately concerned will continue to cooperate in every way that may be required.

WOODROW WILSON.

THE WHITE HOUSE, *May 11, 1918*.

(No. 2859)

2. ARTICLES OF ORGANIZATION, NATIONAL RESEARCH COUNCIL

PREAMBLE

The National Academy of Sciences, under the authority conferred upon it by its charter enacted by the Congress, and approved by President Lincoln on March 3, 1863, and pursuant to the request expressed in an Executive order made by President Wilson on May 11, 1918, adopts the following Articles of Organization for the National Research Council, to replace the organization under which it has operated heretofore.

ARTICLE I—PURPOSE

It shall be the purpose of the National Research Council to promote research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare, as expressed in the Executive order of May 11, 1918.

ARTICLE II—MEMBERSHIP

SECTION 1. The membership of the National Research Council shall be chosen with the view of rendering the Council an effective federation of the principal research agencies in the United States concerned with the fields of science and technology named in Article I.

SEC. 2. The Council shall be composed of—

1. Representatives of national scientific and technical societies.
2. Representatives of the Government, as provided in the Executive order.
3. Representatives of other research organizations and other persons whose aid may advance the objects of the Council.

SEC. 3. The membership of the Council shall consist specifically of the members of the executive board and the members of the divisions, constituted as provided in articles III and IV.

SEC. 4. Membership in the Council shall be limited to citizens of the United States. This, however, shall not be construed as applying to membership in committees, appointed by or acting under the Council, whose members are not necessarily members of the Council, provided that members not citizens of the United States shall in no case form a majority of any committee.

ARTICLE III—DIVISIONS

SECTION 1. The Council shall be organized in divisions of two classes:

A. Divisions dealing with the more general relations and activities of the Council.

B. Divisions dealing with special branches of science and technology.

SEC. 2. The divisions of the Council shall be as follows:

A. Divisions of general relations:

I. Division of foreign relations.

B. Divisions of science and technology:

II. Division of physical sciences.
III. Division of engineering and industrial research.
IV. Division of chemistry and chemical technology.
V. Division of geology and geography.
VI. Division of medical sciences.
VII. Division of biology and agriculture.
VIII. Division of anthropology and psychology.

SEC. 3. The number of divisions and the grouping of subjects in article III, section 2, may be modified by the executive board of the National Research Council.

SEC. 4 (*a*). Each division of general relations shall consist of a chairman, one or more vice chairmen, representatives of the Government and of national and international organizations, and members at large, appointed as provided in article VI.

(*b*) There may be an executive committee of each division of general relations, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30 or, in case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division, except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

SEC. 5. (*a*). Each division of science and technology shall consist of a chairman and of representatives of the Government and of such national societies as seem essential for the conduct of the business of the division appointed as provided in article VI. Members at large may also be appointed as provided in article VI.

(*b*) There may be an executive committee of each division of science and technology, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30, or, in the case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

(*c*) The terms of office of the chairmen of the divisions of science and technology, other than that of engineering and industrial research, shall be so arranged by the chairman of the Council that one-third of these terms expire each year.

SEC. 6. The chairman of each division shall be ex officio a member of all committees of the division.

SEC. 7. Actions by the division involving matters of policy shall be subject to approval by the executive board.

ARTICLE IV—ADMINISTRATION

SECTION 1. The general officers of the National Research Council shall be a chairman, chosen as provided in article V, section 1; a treasurer (see art. V, sec. 3); and such honorary officers as may be appointed by the Council of the National Academy of Sciences, upon nomination by the executive board.

SEC. 2. The affairs of the National Research Council shall be administered by an executive board and its administrative committee. Actions by these bodies involving financial responsibilities or the appointment of general officers must be approved by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy of Sciences under general authority, or under such special authority as may be conferred on it by the Council of the National Academy of Sciences.

SEC. 3. The executive board shall consist of the members of the executive committee of the Council of the National Academy of Sciences; the chairman, treasurer, and honorary officers of the National Research Council; the chairmen of the divisions of general relations and of the divisions of science and technology of the National Research Council; the members of the committee on policies; the president or other representative of the American Association for the Advancement of Science; the chairman or other representative of the Engineering Foundation; and six members at large appointed for a term of 3 years, or for an unexpired term in case of vacancy, by the president of the National Academy of Sciences, on recommendation of the executive board. The president of the National Academy of Sciences shall preside at the meetings of the executive board.

SEC. 4. In administrative matters the executive board shall be represented by an administrative committee, which shall consist of the chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy, and the chairmen of the divisions of the National Research Council.

SEC. 5. The administrative committee shall have power to act upon all matters except those which may be reserved by the executive board for its own action; but the administrative committee shall report all its actions to the executive board. The administrative committee shall prepare the annual budget for submission to the executive board at its annual meeting.

SEC. 6. (*a*) There shall also be a committee on policies of the National Research Council. This committee shall be composed of the president of the National Academy of Sciences, and nine members appointed for terms of 3 years by the executive board, preferably so that it may consist largely of persons who have had past experience in the affairs of the National Research Council. The executive board shall appoint the chairman of the committee on policies to serve for 1 year beginning July 1 or until his successor is appointed. This committee shall submit to the executive board recommendations as to general policies.

(*b*) At the annual meeting of the executive board in 1933, nine members of the committee on policies shall be appointed; three to serve for 1 year, three for 2 years, and three for 3 years, their respective terms to be determined by lot. Each year thereafter the terms of three members will expire, and their successors, to serve for 3 years each, shall be appointed at the annual meeting of the executive board in that year. The date of expiration of the term shall be June 30. In case of vacancy the executive board may fill the unexpired term by appointment.

ARTICLE V—APPOINTMENT AND DUTIES OF OFFICERS OF THE RESEARCH COUNCIL

SECTION 1. The chairman of the National Research Council shall be appointed by the executive board, subject to confirmation by the Council of the National Academy of Sciences, and shall hold office at the pleasure of the board. The chairman shall be the executive officer of the National Research Council and shall have charge of its general administration. He shall act as chairman of its administrative committee, and shall be, ex officio, a member of all divisions and committees of the Council.

SEC. 2. There shall be appointed by the executive board, upon recommendation of the chairman of the National Research Council, an officer with the title of executive secretary of the Council, whose duties it shall be to assist the chairman in the administration of the Council. He shall attend all meetings of the executive board and of the administrative committee, and act as their secretary, and shall hold office at the pleasure of the board.

SEC. 3. The treasurer of the National Academy of Sciences shall be, ex officio, treasurer of the National Research Council.

SEC. 4. In case of a vacancy in the office of the chairman of the National Research Council or of the absence or disability of the chairman an acting chairman may be appointed by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy, upon recommendation of the executive board of the Research Council or its administrative committee.

ARTICLE VI—NOMINATION AND APPOINTMENT OF OFFICERS AND MEMBERS OF DIVISIONS

SECTION 1. *Divisions of science and technology.*—(*a*) The chairman of each division shall be nominated to the executive board by the division concerned, with the approval of the administrative committee. The chairman shall be appointed by the executive board at its annual meeting for a term of 3 years.

(*b*) The national societies to be represented in each of the divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of national societies in each division shall be nominated by the societies, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the president of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

(*d*) Members at large, if any, in each division shall be nominated by the division concerned, with the approval of the executive board, and shall be appointed by the president of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

SEC. 2. *Divisions of general relations.*—(*a*) The officers of each of the divisions of general relations shall be appointed by the executive board to serve for a period of 3 years, except that the foreign secretary of the National Academy of Sciences shall be, ex officio, chairman of the division of foreign relations.

(*b*) The national and international societies or associations to be represented in each of these divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of such societies or associations shall be nominated by the societies or associations, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

(*d*) Members at large in each division shall be nominated by the division, approved by the executive board, and appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

SEC. 3. The Government bureaus, civil and military, to be represented in the divisions of the Council shall be determined by the Council of the National Academy of Sciences, on recommendation from the executive board of the National Research Council.

SEC. 4. The representatives of the Government shall be selected by the secretaries of the departments concerned, after conference with the chairman of the National Research Council, and the names of those thus proposed shall be presented to the president of the National Academy of Sciences to be nominated by him to the President of the United States for designation for service with the National Research Council. Each Government representative shall serve during the pleasure of the President of the United States, not to exceed a term of 3 years, and a vacancy from any cause shall be filled for the remainder of the term in the same manner as in the case of the original designation.

SEC. 5. The terms of office of officers and members, unless otherwise provided, shall terminate on June 30 of the year in which their appointments expire.

SEC. 6. Vacancies occurring in the divisions of either class except as to representatives of the Government, may be filled for the unexpired term by the executive board, upon recommendation of the division concerned, or ad interim by the administrative committee upon similar recommendation.

ARTICLE VII—MEETINGS

SECTION 1. The annual meeting of the executive board shall be held in April in the city of Washington at the time of the meeting of the National Academy of Sciences. Special meetings may be held at other times at the call of the chairman of the National Research Council. A majority of the members of the board shall constitute a quorum for the transaction of business.

SEC. 2. Stated meetings of the administrative committee shall be held in the city of Washington at least five times a year, at such dates as shall be determined by the chairman of the National Research Council. Special meetings may be held at other times on call of the chairman. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 3. The committee on policies shall hold one stated meeting during the year, preferably in Washington at the time of the annual meeting of the National Academy of Sciences. Special meetings may be held at any time on call of the chairman of the committee. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 4. Each division of science and technology shall hold at least one stated meeting during the year, at a time to be determined by the chairman of the division in consultation with the chairman of the Council. Special meetings may be called at other times by the chairman of the division.

SEC. 5. Meetings of any division of general relations shall be held upon the call of its chairman.

ARTICLE VIII—PUBLICATIONS AND REPORTS

SECTION 1. An annual report on the work of the National Research Council shall be presented by the chairman to the National Academy of Sciences.

SEC. 2. Other publications of the National Research Council may include papers, bulletins, reports, and memoirs, which may appear in Proceedings or Memoirs of the National Academy of Sciences, in the publications of other societies, in scientific and technical journals, or in a separate series of the National Research Council.

ARTICLE IX—AMENDMENTS

SECTION 1. By action of the National Academy of Sciences, on April 29, 1919, power of amendment of these articles of organization is given to the Council of the National Academy of Sciences.

3. BYLAWS

1. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee of the National Academy of Sciences and be directly responsible to the treasurer.

2. The executive board may create such other salaried officers as are necessary for the transaction of the business of the Council.

3. Officers of the Council, members of the executive board, and special agents of the Council, when authorized to travel on business of the Council, may be allowed their necessary expenses.

4. Members of the divisions of science and technology and members of the executive committee of any division of general relations, when attending an authorized meeting, may be reimbursed for traveling expenses, or such portion thereof as the division chairman may determine, within the funds made available for that purpose in the budget.

5. The chairman of each division shall direct the administrative and scientific work of the division.

6. In the fiscal year in which the term of office of a chairman of a division expires it shall be his duty to appoint, on or before February 1, a nominating committee of three, chosen from present or former members of the division or from the membership of existing committees of the division, who, in consultation with

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the chairman of the division and the chairman of the Council, shall select an available candidate for the chairmanship for the ensuing term. The name of the candidate shall be reported to the division through its chairman and, if approved by the division, shall be recommended to the executive board at its annual meeting for appointment, as provided in article VI, sections 1 and 2, of the articles of organization.

7. Each division of science and technology is empowered to arrange, in accordance with its special needs, for the selection of the members at large of the division, and for an executive committee, to be appointed annually, as provided in article III, section 5 (a) and (b), and article VI, section 1 (d) of the articles of organization.

Each division may designate also one of its members to act as vice chairman of the division, the term of office to be for 1 year.

8. Following the termination of any regular 3-year period of service the chairman or members of a division shall be eligible for reappointment in the same status only after a lapse of 1 year, except that the executive board may continue the service of a chairman or members for a second period of 3 years, or less, when such action is recommended by the division concerned.

9. An annual honorarium may be paid to the chairman of each division of science and technology and an annual maintenance fund shall be appropriated for the support of the work of each division of the Council. The amount of the honorarium and of the maintenance fund of each division shall be determined by the administrative committee, subject to the approval of the executive board and the Council of the National Academy of Sciences or its executive committee.

10. The maintenance fund allotted to each division shall be expended under the authority of the chairman of the division to provide for meetings of the division and its various committees, and other necessary expenses, in accordance with the regulations in force in the Council controlling financial expenditures.

11. No member of a committee constituted to administer funds entrusted to the National Research Council shall receive an honorarium or salary from such funds for his services, except in cases specifically authorized in advance by the executive board or its administrative committee, but members of such committees may be reimbursed from the funds for expenses incurred in the work of the committee.

12. Members of special committees organized within any of the divisions must be approved by the administrative committee before official notification of appointment is made by the chairman of the division.

13. Solicitation of funds for the support of projects of a division may be made only after authorization by both the executive board (or its administrative committee) and the Council of the National Academy of Sciences (or its executive committee). Such solicitation shall be conducted under the direction of the chairman of the National Research Council acting in conjunction with the chairman of the division concerned.

14. Special funds granted to the National Research Council, other than those for fellowships and grants-in-aid, must be expended in accordance with budgets previously approved by the administrative committee.

15. It shall be the duty of the chairman of each division of the Council to submit an annual report of the activities of his division to the chairman of the Council on or before June 30. Interim reports shall be made to the chairman of the Council before each stated meeting of the administrative committee.

16. Standing committees of the executive board, unless otherwise provided for, shall be appointed annually by the board at its April meeting, or, in case of need, by the administrative committee at one of its stated meetings.

17. The executive board, at its annual meeting in April, shall appoint a nominating committee of three members to prepare nominations for presentation at the next annual meeting of the board for vacancies in the committee on policies and in the list of members at large of the board, occurring at the end of the fiscal year.

18. Amendments of bylaws may be made by the executive board at any authorized meeting of the board.

19. A publication to be known as the Bulletin of the National Research Council shall be established to provide for the publication of materials originating in the work of the Council. The Bulletin shall be issued as occasion demands.

20. A series to be known as the Reprint and Circular Series of the National Research Council shall provide for the distribution of papers published or printed by or for the National Research Council.

4. ORGANIZATION OF THE NATIONAL RESEARCH COUNCIL, 1943-44

A. Officers and Executive Board

OFFICERS

Chairman.—Ross G. Harrison, Sterling professor of biology, emeritus, Yale University, New Haven, Conn.

Treasurer.—Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the Department of Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary.—W. H. Kenerson, professor of mechanical engineering, emeritus, Brown University; National Research Council, Washington, D. C.

Business manager.—George D. Meid, National Research Council, Washington, D. C.

Bursar.—J. H. J. Yule, National Research Council, Washington, D. C.

Chief clerk.—C. L. Wade, National Research Council, Washington, D. C.

EXECUTIVE BOARD

Presiding officer.—Frank B. Jewett, president, National Academy of Sciences, ex officio.

MEMBERS, EX OFFICIO

Chairman and treasurer of the National Research Council.

Chairmen of the divisions of the National Research Council.

Executive committee of the Council of the National Academy of Sciences

Frank B. Jewett, president, National Academy of Sciences; vice president, American Telephone & Telegraph Co., 195 Broadway, New York City.

Isaiah Bowman, vice president, National Academy of Sciences; president, Johns Hopkins University, Baltimore, Md.

F. E. Wright, home secretary, National Academy of Sciences; petrologist, Geophysical Laboratory, Carnegie Institution of Washington; 2134 Wyoming Avenue, Washington, D. C.

Ross G. Harrison.

Jerome C. Hunsaker.

W. Mansfield Clark, professor of physiological chemistry, School of Medicine, Johns Hopkins University, Baltimore, Md.

A. N. Richards, professor of pharmacology, and vice president in charge of medical affairs, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Committee on policies of the National Research Council

R. A. Millikan, chairman, director, Norman Bridge Laboratory of Physics, and chairman of the executive council, California Institute of Technology, Pasadena, Calif.

Isaiah Bowman, vice chairman.

Vannevar Bush, president, Carnegie Institution of Washington, Washington, D. C.

Karl T. Compton, president, Massachusetts Institute of Technology, Cambridge, Mass.

James B. Conant, president, Harvard University, Cambridge, Mass.

E. G. Conklin, president, American Philosophical Society, Independence Square, Philadelphia, Pa.

Frank B. Jewett, ex officio.

A. N. Richards.

W. J. Robbins, director, New York Botanical Garden, Bronx Park, New York City.

Harlow Shapley, professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

REPRESENTATIVES OF ORGANIZATIONS

President of the American Association for the Advancement of Science.—A. J. Carlson, professor of physiology, emeritus, University of Chicago, Chicago, Ill.

Representative of the Engineering Foundation.—A. L. Queneau, metallurgist, United States Steel Corporation, 71 Broadway, New York City.

MEMBERS AT LARGE

Carl E. Guthe, director, New York State Museum, State Education Department, Albany, N. Y.

Walter S. Hunter, professor of psychology and director of the Psychological Laboratories, Brown University, Providence, R. I.

Walter R. Miles, professor of psychology, School of Medicine, Yale University, New Haven, Conn.

W. M. Stanley, member, Rockefeller Institute for Medical Research, Princeton, N. J.

Russell M. Wilder, professor of medicine, Graduate School of Medicine, University of Minnesota, Mayo Clinic, Rochester, Minn.

F. W. Willard, president, Nassau Smelting & Refining Co., 170 Fulton Street, New York City.

ADMINISTRATIVE COMMITTEE

The chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy of Sciences, and the chairmen of the divisions of the Council; including—

Ross G. Harrison, chairman
Isaiah Bowman
W. B. Cannon
Leonard Carmichael
W. Mansfield Clark
W. F. Durand
L. P. Eisenhart
R. F. Griggs
Jerome C. Hunsaker
Frank B. Jewett
William W. Rubey
Lewis H. Weed
F. E. Wright

COMMITTEES

The chairman of the National Research Council is, ex officio, a member of all divisions and committees of the Council.

Committee on nominations.—Chairman, A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard Medical School, Boston, Mass.

Committee on publication and library.—Chairman, ———.

Advisory committee on buildings and grounds (joint committee with the National Academy of Sciences).—Chairman, Paul Brockett.

Committee on exhibits (joint committee with the National Academy of Sciences).—Chairman, F. E. Wright.

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Lawrence W. Bass, director, New England Industrial Research Foundation, Inc., Boston, Mass.

Harris M. Chadwell, vice chairman of the division, head of the department of chemistry and chemical engineering, Tufts College, Medford, Mass.

Hans T. Clarke, professor of biochemistry, College of Physicians and Surgeons, Columbia University, New York City.

Per K. Frolich, director of Esso Laboratories, chemical division, Standard Oil Development Co., Elizabeth, N. J.

Walter J. Murphy, editor, Industrial & Engineering Chemistry, 1155 Sixteenth Street NW., Washington, D. C.

Electrochemical Society

James H. Critchett, vice president, Electro Metallurgical Co.; director of research, Union Carbide & Carbon Corp., 30 East Forty-second Street, New York City.

American Insitute of Chemical Engineers

M. E. Putnam, production manager, pharmaceutical and allied products division, Dow Chemical Co., Midland, Mich.

American Ceramic Society

George W. Morey, physical chemist, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

American Society for X-ray and Electron Diffraction

Sterling B. Hendricks, senior chemist, Fertilizer Research Division, United States Bureau of Plant Industry, Washington, D. C.

International Union of Chemistry

Marston T. Bogert, ex officio, president of the International Union of Chemistry; professor of chemistry, emeritus, Columbia University, New York City.

MEMBERS AT LARGE

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John N. Street, director of chemical and physical research, Firestone Tire & Rubber Co., Akron, Ohio.

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Special assistant to the chairman for the Pacific coast.—Joseph B. Koepfli, research associate in chemistry, California Institute of Technology, Pasadena, Calif.

Technical aide in charge of a survey of antimalarial drugs.—Frederick Y. Wiselogle, associate in chemistry, Johns Hopkins University, Baltimore, Md.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

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American section, International Union of Chemistry.—The division of chemistry and chemical technology acts as the American section of the International Union of Chemistry.

Committee on fellowships.—Chairman, W. Mansfield Clark.

GROUP II. COMMITTEES ON BASIC DATA

Committee on annual tables of constants and numerical data.—Chairman, Hugh S. Taylor, David B. Jones professor of chemistry, Princeton University, Princeton, N. J.

Committee on fundamental physical constants (joint committee with the division of physical sciences).—Chairman, Lyman J. Briggs, Director, National Bureau of Standards, Washington, D. C.

Committee on low-temperature scales.—Chairman, F. G. Brickwedde, Chief, Cryogenic Laboratory, National Bureau of Standards, Washington, D. C.

Committee on thermal data for chemical industries.—Chairman, F. G. Brickwedde.

Committee on chemical data for ceramists.—Chairman, Alexander Silverman, professor of chemistry, University of Pittsburgh, Pittsburgh, Pa.

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Committee on organic chemical nomenclature.—Chairman, Austin M. Patterson, professor of chemistry, emeritus, Antioch College, Yellow Springs, Ohio.

Committee on biochemical nomenclature (to cooperate with a similar committee of the International Union of Chemistry).—Chairman, J. Murray Luck, associate professor of biochemistry, Stanford University, Stanford University, Calif.

Committee on standardization of symbols and abbreviations.—Chairman, Charles A. Marlies, assistant professor of chemical engineering, College of the City of New York, New York City.

GROUP IV. SPECIAL COMMITTEES

Committee on miscellaneous strategic and critical materials (joint committee with the National Academy of Sciences).—Chairman, S. D. Kirkpatrick, editor, Chemical and Metallurgical Engineering, 330 West Forty-second Street, New York City.

Committee on catalysis.—Chairman, R. E. Burk, chemical research department, Standard Oil Co., Cleveland, Ohio.

Committee on cellulose and allied substances.—Chairman, Harry F. Lewis, dean, Institute of Paper Chemistry, Appleton, Wis.

Committee on the chemical utilization of coal.—Chairman, H. H. Lowry, director, coal research laboratory, Carnegie Institute of Technology, Pittsburgh, Pa.

Committee on the chemistry of proteins.—Chairman, H. B. Vickery, biochemist in charge of laboratories, Connecticut Agricultural Experiment Station, New Haven, Conn.

Committee on technology of organic plastics.—Chairman, Archie J. Weith, director of development, Bakelite Corp., Bloomfield, N. J.

Committee on the location of new and rare instruments.—Chairman, D. H. Killeffer, consultant, 60 East Forty-second Street, New York City.

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MEMBERS OF THE DIVISION

REPRESENTATIVES OF SOCIETIES

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Marland Billings, associate professor of geology, Harvard University, Cambridge, Mass.
T. S. Lovering, Box 115, Eureka, Utah.

Mineralogical Society of America

Paul F. Kerr, professor of mineralogy, Columbia University, New York City.

Paleontological Society

G. Arthur Cooper, assistant curator, Division of Stratigraphic Paleontology, United States National Museum, Washington, D. C.

Association of American Geographers

Otto E. Guthe, principal administrative assistant, Office of the Geographer, Department of State, Washington, D. C.
Richard J. Russell, professor of geography and head of the department of geography, Louisiana State University, University, La.

American Geographical Society

Raye R. Platt, research associate, department of Hispanic-American research, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

Society of Economic Geologists

Charles H. Behre, Jr., professor of geology, Columbia University, New York City.

American Ceramic Society

George W. Morey, physical chemist, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

American Geophysical Union

John A. Fleming, director, department of terrestrial magnetism, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington, D. C.

American Association of Petroleum Geologists

Monroe G. Cheney, consulting geologist, and president of the Anzac Oil Corp., Coleman, Tex.

MEMBERS AT LARGE

Ralph H. Brown, associate professor of geography, University of Minnesota, Minneapolis, Minn.
William W. Rubey, principal geologist, United States Geological Survey, Washington, D. C.
Joseph T. Singewald, Jr., professor of economic geology and chairman, department of geology, Johns Hopkins University, Baltimore, Md.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

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National committee of the United States, International Geographical Union.—Chairman, John K. Wright, director, American Geographical Society, Broadway at One hundred and fifty-sixth Street, New York City.

Committee on fellowships.—Chairman, William W. Rubey.

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Committee on Asiatic geography.—Chairman, George B. Cressey, professor of geology and geography, Syracuse University, Syracuse, N. Y.

Committee on authors' abstracts.—Chairman, Marcus I. Goldman, geologist, United States Geological Survey, Washington, D. C.

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Section on paleontology.—Chairman, Glenn L. Jepsen, associate professor of vertebrate paleontology, Princeton University, Princeton, N. J.

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Committee on manpower in the geographic profession.—Chairman, Otto E. Guthe.

Subcommittee on analysis of manpower data.—Chairman, F. Webster McBryde, senior geographer, Military Intelligence Service, War Department, Washington, D. C.

Committee on density currents.—Chairman, Herbert N. Eaton, Chief, Hydraulic Laboratory Section, National Bureau of Standards, Washington, D. C.

Subcommittee on Elephant Butte Reservoir.—Chairman, C. S. Scofield, principal agriculturist, United States Bureau of Plant Industry, Washington, D. C.

Subcommittee on Lake Mead.—Chairman, C. P. Vetter, engineer, United States Bureau of Reclamation, Denver, Colo.

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Subcommittee on census of professional geographers.—Chairman, W. L. G. Joerg, Chief of the Division of Maps and Charts, National Archives, Washington, D. C.

Subcommittee on geographical research in New York State.—Chairman, Eric H. Faigle, associate professor of geography, Syracuse University, Syracuse, N. Y.

Committee on geological personnel.—Chairman, W. B. Heroy, Director, Petroleum Reserves Division, Petroleum Administration for War, Washington, D. C.

Committee on the geology of ceramic raw materials.—Chairman, Herbert Insley, petrographer, National Bureau of Standards, Washington, D. C.

Committee on glacial map of North America.—Chairman, R. F. Flint, associate professor of geology, Yale University, New Haven, Conn.

Committee on Latin-American studies.—Chairman, Preston E. James, professor of geography, University of Michigan, Ann Arbor, Mich.

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Committee on marine ecology as related to paleontology.—Chairman, Harry S. Ladd, associate geologist, United States Geological Survey, Washington, D. C.

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Committee on meteorites.—Chairman, W. F. Foshag, curator of mineralogy, United States National Museum, Washington, D. C.

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Committee on micropaleontology.—Chairman, Joseph A. Cushman, director, Cushman Laboratory for Foraminiferal Research, Sharon, Mass.

Committee on paleobotany.—Chairman, Erling Dorf, associate professor of geology and curator of paleobotany, Princeton University, Princeton, N. J.

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Committee on sedimentation.—Chairman, Parker D. Trask, geologist, United States Geological Survey, Washington, D. C.

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American Society for Clinical Investigation

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American Society for Experimental Pathology

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American Society for Pharmacology and Experimental Therapeutics

E. K. Marshall, Jr., professor of pharmacology and experimental therapeutics, School of Medicine, Johns Hopkins University, Baltimore, Md.

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Advisory committee on drug addiction.—Chairman, William Charles White, chairman, medical research committee, National Tuberculosis Association; consultant pathologist, National Institute of Health, Bethesda, Md.

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Lt. Col. Roger G. Prentiss, Jr., Office of the Surgeon General, War Department.

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Subcommittee on motion sickness.—Chairman, Derek Denny-Brown, director, neurological unit, Boston City Hospital, Boston, Mass.

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3. *Committee on convalescence and rehabilitation.*—Chairman, William S. Tillett.

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Subcommittee on medical food requirements.—Chairman, William D. Stroud, professor of cardiology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa.

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Subcommittee on medical nutrition.—Chairman, J. S. McLester, professor of medicine, School of Medicine, University of Alabama, Birmingham, Ala.

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Subcommittee on tuberculosis.—Chairman, J. Burns Amberson, Jr., professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

Subcommittee on venereal diseases.—Chairman, J. Earle Moore, associate professor of medicine, School of Medicine, Johns Hopkins University, Baltimore, Md.

7. *Committee on neuropsychiatry.*—Chairman, Winfred Overholser, professor of psychiatry, George Washington University; Superintendent, St. Elizabeth's Hospital, Washington, D. C.

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8. *Committee on pathology.*—Chairman, Howard T. Karsner.

9. *Committee on sanitary engineering.*—Chairman, Abel Wolman, professor of sanitary engineering, Johns Hopkins University, Baltimore, Md.

10. *Committee on shock and transfusions.*—Chairman, Walter B. Cannon, professor of physiology, emeritus, Harvard Medical School, Boston, Mass.

Subcommittee on blood substitutes.—Chairman, Joseph T. Wearn, professor of medicine, Western Reserve University, Cleveland, Ohio.

Subcommittee on shock.—Chairman, Alfred Blalock.

11. *Committee on surgery.*—Chairman, Evarts A. Graham, Bixby professor of surgery, School of Medicine, Washington University, St. Louis, Mo.

Subcommittee on anesthesia.—Chairman, Ralph M. Waters, professor of anesthesiology, School of Medicine, University of Wisconsin, Madison, Wis.

Subcommittee on burns.—Chairman, Allen O. Whipple, Valentine Mott professor of surgery, College of Physicians and Surgeons, Columbia University, New York City.

Subcommittee on neurosurgery.—Chairman, Howard C. Naffziger.

Subcommittee on ophthalmology.—Chairman, Harry S. Gradle, professor of ophthalmology (extramural), Northwestern University School of Medicine, Chicago, Ill.

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Subcommittee on otolaryngology.—Chairman, A. C. Furstenberg, professor of otolaryngology and dean of the School of Medicine, University of Michigan, Ann Arbor, Mich.

Subcommittee on physical therapy.—Chairman, John S. Coulter, associate professor of physical therapy, School of Medicine, Northwestern University, Chicago, Ill.

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Subcommittee on radiology.—Chairman, A. C. Christie, professor of clinical radiology, School of Medicine, Georgetown University, Washington, D. C.

Subcommittee on surgical infections.—Chairman, Frank L. Meleney, associate professor of clinical surgery, College of Physicians and Surgeons, Columbia University, New York City.

Subcommittee on thoracic surgery.—Chairman, Evarts A. Graham.

Subcommittee on urology.—Chairman, Herman L. Kretschmer, professor of urology (Rush), College of Medicine, University of Illinois, Chicago, Ill.

Subcommittee on vascular injuries.—Chairman, John Homans, clinical professor of surgery, emeritus, Harvard Medical School, Boston, Mass.

12. *Committee on treatment of gas casualties.*—Chairman, Milton C. Winternitz, Anthony N. Brady professor of pathology, School of Medicine, Yale University, New Haven, Conn.

13. *Committee on information.*—Chairman, Morris Fishbein, editor, Journal of the American Medical Association, 535 North Dearborn Street, Chicago, Ill.

Subcommittee on historical records.—Chairman, John F. Fulton.

Subcommittee on publicity.—Chairman, Morris Fishbein.

Coordinating board for malarial studies.—Chairman, Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York.

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Panel on pharmacology of antimalarials.—Chairman, E. Kennerly Marshall, Jr., professor of pharmacology and experimental therapeutics, School of Medicine, Johns Hopkins University, Baltimore, Md.

Panel on biochemistry of antimalarials (operating under the division of chemistry and chemical technology).—Chairman, W. Mansfield Clark, professor of physiological chemistry, School of Medicine, Johns Hopkins University, Baltimore, Md.

Panel on synthesis of antimalarials (operating under the division of chemistry and chemical technology).—Chairman, W. Mansfield Clark.

The division of medical sciences cooperates with other divisions of the council in the activities of the following committees:

Food and nutrition board.
Committee on genetics of pathogenic organisms.
Committee on human heredity.
Committee on the maintenance of pure genetic strains.
Committee on food habits.
Committee on problems of neurotic behavior.

VII. DIVISION OF BIOLOGY AND AGRICULTURE

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Vice Chairman.—L. A. Maynard.
Executive committee.—Chairman, Robert F. Griggs; vice chairman, L. A. Maynard; R. E. Coker, A. C. Redfield, E. W. Sinnott.

MEMBERS OF THE DIVISION

Robert F. Griggs, chairman of the division; executive officer, department of botany, and chairman of the division of natural sciences, George Washington University, Washington, D. C.

REPRESENTATIVES OF SOCIETIES

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James I. Hambleton, principal apiculturist, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Beltsville, Md.

American Dairy Science Association

O. E. Reed, Chief, Bureau of Dairy Industry, United States Department of Agriculture, Washington, D. C.

American Genetic Association

H. C. McPhee, Assistant Chief, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

American Institute of Nutrition

L. A. Maynard, vice chairman of the division; director, School of Nutrition and professor of animal nutrition, Cornell University, Ithaca, N. Y.

American Physiological Society

McKeen Cattell, associate professor of pharmacology, Cornell University Medical College, New York City.

American Phytopathological Society

J. C. Walker, professor of plant pathology, University of Wisconsin, Madison, Wis.

American Society of Agronomy

R. M. Salter, Chief, Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, Beltsville, Md.

American Society of Animal Production

H. W. Marston, senior animal husbandman, Agricultural Research Administration, United States Department of Agriculture, Washington, D. C.

American Society of Biological Chemists

Col. Paul E. Howe, Food and Nutrition Subdivision, Professional Service Division, Office of the Surgeon General, United States Army, Washington, D. C.

American Society for Horticultural Science

E. C. Auchter, Administrator, Agricultural Research Administration, United States Department of Agriculture, Washington, D. C.

American Society of Ichthyologists and Herpetologists

M. Graham Netting, secretary, American Society of Ichthyologists and Herpetologists, Carnegie Museum, Pittsburgh, Pa.

American Society of Mammalogists

Remington Kellogg, Assistant Curator, Division of Mammals, Smithsonian Institution, Washington, D. C.

American Society of Parasitologists

Willard H. Wright, chief, division of zoology, National Institute of Health, Bethesda, Md.

American Society of Plant Physiologists

F. P. Cullinan, Assistant Chief, Bureau of Plant Industry, Soils, and Agricultural Engineering, United States Department of Agriculture, Beltsville, Md.

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Botanical Society of America

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Ecological Society of America

Ira N. Gabrielson, Chief, Fish and Wildlife Service, United States Department of the Interior, Washington, D. C.

Entomological Society of America

E. O. Essig, professor of entomology, University of California, Berkeley, Calif.

Genetics Society of America

P. C. Mangelsdorf, professor of botany and assistant director of the botanical museum, Harvard University, Cambridge, Mass.

Limnological Society of America

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Mycological Society of America

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Poultry Science Association

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Society of American Bacteriologists

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Committee on forestry (joint committee with the Society of American Foresters).—Chairman, Henry S. Graves, dean of the School of Forestry and Sterling professor of forestry, emeritus, Yale University, New Haven, Conn.

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Committee on training of research workers in agriculture.—Chairman, Richard Bradfield, professor of soil technology, Cornell University, Ithaca, N. Y.

Committee on wildlife (joint committee with the Wildlife Society).—Chairman, E. Laurence Palmer, professor of rural education, Cornell University, Ithaca, N. Y.

American section, International Union of Biological Sciences.—The division of biology and agriculture acts as the American section of the International Union of Biological Sciences.

The division of biology and agriculture cooperates with other divisions of the Council in the activities of the following committees:

Committee on common problems of genetics and paleontology.

Committee on food habits.

Committee on problems of neurotic behavior.

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VIII. DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

Chairman.—Leonard Carmichael.

Vice chairman.—Ralph Linton.

Executive committee.—Chairman, Leonard Carmichael; vice chairman, Ralph Linton; John E. Anderson; George P. Murdock.

Members of the Division

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American Anthropological Association

Ralph Beals, assistant professor of anthropology, University of California at Los Angeles, Los Angeles, Calif.

C. S. Coon, associate professor of anthropology and assistant curator of Old World ethnology, Harvard University, Cambridge, Mass.

D. S. Davidson, assistant professor of anthropology, University of Pennsylvania, Philadelphia, Pa.

Fred Eggan, assistant professor of anthropology, University of Chicago, Chicago, Ill.

John Gillin, associate professor of anthropology, Duke University, Durham, N. C.

M. J. Herskovits, professor of anthropology, Northwestern University, Evanston, Ill.

Clyde H. M. Kluckhohn, associate professor of anthropology, Harvard University, Cambridge, Mass.

George P. Murdock, professor of anthropology, Yale University, New Haven, Conn.

M. W. Stirling, Chief, United States Bureau of American Ethnology, Smithsonian Institution, Washington, D. C.

American Psychological Association

Gordon W. Allport, associate professor of psychology, Harvard University, Cambridge, Mass.

John E. Anderson, professor of psychology, and director of the Institute of Child Welfare, University of Minnesota, Minneapolis, Minn.

Arthur G. Bills, professor of psychology, University of Cincinnati, Cincinnati, Ohio.

Hadley Cantril, associate professor of psychology, Princeton University, Princeton, N. J.

Karl M. Dallenbach, professor of psychology, Cornell University, Ithaca, N. Y.

Joy P. Guilford, professor of psychology, University of Southern California, Los Angeles, Calif.

Harold E. Jones, professor of psychology and director of the Institute of Child Welfare, University of California, Berkeley, Calif.

Norman R. F. Maier, associate professor of psychology, University of Michigan, Ann Arbor, Mich.

Dael L. Wolfle, assistant professor of psychology, University of Chicago, Chicago, Ill.

MEMBERS AT LARGE

Leonard Carmichael, chairman of the division; president, Tufts College, Medford, Mass.

Fay-Cooper Cole, professor of anthropology, University of Chicago, Chicago, Ill.

Henry E. Garrett, associate professor of psychology, Columbia University, New York City.

Ralph Linton, professor of anthropology, Columbia University, New York City.

Committees

The chairman of the division is, ex officio, a member of all committees of the division:

Committee on African anthropology.—Chairman, M. J. Herskovits.

Committee on the analysis of service occupations and tasks.—Chairman, Leonard Carmichael.

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Subcommittee on native government.—Chairman, Cora DuBois, professor of anthropology, Sarah Lawrence College, Bronxville, N. Y.

Committee on basic needs in American archaeology.—Chairman, W. Duncan Strong, associate professor of anthropology, and director of the archaeological laboratory, Columbia University, New York City.

Committee on child development.—Chairman, R. S. Woodworth, professor of psychology, emeritus, Columbia University, New York City.

Committee on classification of military personnel advisory to the Adjutant General's Office.—Chairman, Walter V. Bingham, Adjutant General's Office, War Department, Washington, D. C.

Advisory board on mechanical and technical personnel.—Chairman, C. L. Shartle, Chief, Occupational Analysis Section, United States Bureau of Employment Security, Washington, D. C.

Emergency committee in psychology.—Chairman, Karl M. Dallenbach.

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Subcommittee on problems of leadership.—Chairman, Henry E. Garrett.

Subcommittee on problems of mental deficiency.—Chairman, E. A. Doll, director, Bonnie Brae Farm for Boys, Millington, N. J.

Subcommittee on psychological aspects of readjustment.—Chairman, H. E. Burtt, professor of psychology, Ohio State University, Columbus, Ohio.

Subcommittee on survey and planning.—Chairman, Robert N. Yerkes, professor of psychobiology, Yale University, New Haven, Conn.

Subcommittee on a textbook on military psychology.—Chairman, Edwin G. Boring, professor of psychology, Harvard University, Cambridge, Mass.

Committee on the history of psychology and the war.—Chairman, Robert M. Yerkes.

Committee on fellowships.—Chairman, Leonard Carmichael.

Committee on food habits.—Chairman, Carl E. Guthe, director of university museums, and director, museum of anthropology, University of Michigan, Ann Arbor, Mich.

Committee on Latin-American anthropology.—Chairman, Wendell C. Bennett, professor of anthropology, Yale University, New Haven, Conn.

Committee on Latin-American psychology.—Chairman, J. G. Beebe-Center, instructor in psychology, Harvard University, Cambridge, Mass.

Committee on problems of neurotic behavior.—Chairman, Walter R. Miles, professor of psychology, School of Medicine, Yale University, New Haven, Conn.

Committee on selection and training af aircraft pilots.—Chairman, Morris S. Viteles, professor of psychology, University of Pennsylvania, Philadelphia, Pa.

Committee on applied psychology and the war.—Chairman, John M. Stalnaker, associate secretary, college entrance examination board, Princeton, N. J.

Subcommittee on procedures.—Chairman, John M. Stalnaker.

Committee on a survey of South American Indians.—Chairman, John M. Cooper, professor of anthropology, Catholic University of America, Washington, D. C.

Committee on war service of anthropologists.—Chairman, Ralph Beals.

The division of anthropology and psychology cooperates with other divisions of the Council in the activities of the following committees:

Committee on biological processes of ageing.
Committee on genetics of pathogenic organisms.
Food and nutrition board.

REPRESENTATIVES OF THE DIVISION ON—

Policy board of the National Indian Institute

John M. Cooper.

Technical Board of Occupational Analysis Section, United States Employment Service

Paul S. Achilles, W. V. Bingham, Clark L. Hull, F. S. Keller, L. J. O'Rourke Donald G. Paterson, A. T. Poffenberger, Morris S. Viteles.

5. NATIONAL RESEARCH FELLOWSHIPS

The National Research Council has been entrusted by the Rockefeller Foundation with appropriations to provide for a limited number of postdoctorate fellowships for the purpose of promoting fundamental research in science primarily in educational and research institutions of the United States. These fellowships are awarded to persons who have demonstrated a high order of ability in research for the purpose of enabling them to obtain additional experience in research at institutions which make adequate provision for effective prosecution of research. Applicants are eligible for appointment who are citizens of the United States or of Canada and, as a rule, who are under 35 years of age and have fulfilled all requirements for the doctor's degree not later than the close of the calendar year in which their applications are filed, or who have had training equivalent to that represented by the doctor's degree. The minimum stipend for these fellowships is $1,800 per year. Under special conditions fellows may be appointed for study abroad.

In addition to fellowships in the general fields of medicine, maintained by the Rockefeller Foundation, the Council also administers fellowships for the study of the filtrable viruses and for investigations in the basic fields related to orthopedic surgery, supported by the National Foundation for Infantile Paralysis, Inc.

A special series of medical fellowships supported by a grant from the Rockefeller Foundation, and known as the Welch Fellowships in Internal Medicine, is also awarded to physicians under 40 years of age who are citizens of the United

States and who have demonstrated unusual aptitude and promise of achievement in internal medicine, teaching, and investigation. These fellowships are designed to provide an opportunity for a prolonged period of advanced training in the field of internal medicine. This training may include study and investigation in the basic medical sciences as well as clinical experience, teaching, and research.

Natural Sciences

Fellowships in the following subjects are administered by the National Research Fellowship Board in the Natural Sciences: Physics, astronomy, chemistry, mathematics, geology, paleontology, physical geography, botany, zoology, agriculture, forestry, anthropology, and psychology.

When requested to do so, the board is ready to consider entering into cooperation with universities in the support of participating fellowships by providing a part-time research fellowship in connection with a part-time university instructorship.

MEMBERS OF THE BOARD

Ross G. Harrison, ex officio, chairman of the National Research Council: Sterling professor of biology, emeritus, Yale University, New Haven, Conn., secretary.

Isaiah Bowman, president, Johns Hopkins University, Baltimore, Md.

M. H. Jacobs, professor of general physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Frank B. Jewett, ex officio, president, National Academy of Sciences; vice president, American Telephone & Telegraph Co., 195 Broadway, New York City.

Duncan A. MacInnes, member, Rockefeller Institute for Medical Research, Sixty-sixth Street and York Avenue, New York City.

John C. Slater, professor of physics, in charge of the department, Massachusetts Institute of Technology, Cambridge, Mass.

Fellowships for 1943–44 have been awarded to the following persons:
In physics.—Dolores R. Terwoord.
In astronomy.—Helen R. Steel.
In chemistry.—Saul G. Cohen, Foil A. Miller.
In geology.—Aureal T. Cross.
In zoology.—William Hovanitz.
In psychology.—Herman A. Witkin.

Medical Sciences

The fellowships in the medical sciences, including those relating to the filtrable viruses and orthopedic surgery, are administered by the medical fellowship board.

MEMBERS OF THE BOARD

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Alfred Blalock, professor of surgery, School of Medicine, Johns Hopkins University, Baltimore, Md.

Paul R. Cannon, professor of pathology, University of Chicago, Chicago, Ill.

A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard Medical School, Boston, Mass.

Homer W. Smith, professor of physiology and director of the physiological laboratories, New York University College of Medicine, New York City.

Lewis H. Weed, ex officio, chairman, division of medical sciences, National Research Council; professor of anatomy, and director of the School of Medicine, Johns Hopkins University, Baltimore, Md.

ADDITIONAL MEMBERS FOR THE CONSIDERATION OF THE WELCH FELLOWSHIPS IN INTERNAL MEDICINE

Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

T. Grier Miller, professor of clinical medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

John B. Youmans, associate professor of medicine and director of postgraduate instruction, School of Medicine, Vanderbilt University, Nashville, Tenn.

Fellowships for 1943–44 have been awarded to the following persons:

In fields of general medicine.—L. James Talbot.

In virus research.—Edward H. Anderson, H. Chandler Elliott, I. William McLean, Hugh Tatlock, Herbert A. Wenner.

In orthopedic surgery.—Maxwell F. Kepl.

WELCH FELLOWSHIP IN INTERNAL MEDICINE

S. Howard Armstrong, Jr., Joseph F. Ross.

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Allport, Gordon, department of psychology, Harvard University, Cambridge 38, Mass.
Anderson, John E., Institute of Child Welfare, University of Minnesota, Minneapolis 14, Minn.
Annand, P. N., United States Bureau of Entomology and Plant Quarantine, Washington 25, D. C.
Auchter, E. C., Research Administration, United States Department of Agriculture, Washington 25, D. C.
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Bailey, E. G., Babcock & Wilcox Co., 85 Liberty Street, New York City.
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Billings, Marland, department of geology, Harvard University, Cambridge 38, Mass.
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Blalock, Alfred, School of Medicine, Johns Hopkins University, Baltimore 5, Md.
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Breer, Carl, Chrysler Corp., Detroit, Mich.
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Lucké, Lt. Col. Balduin, Army Medical Museum, Washington 25, D. C.

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Wright, Willard H., National Institute of Health, Bethesda, Md.

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REPORT OF THE NATIONAL ACADEMY OF SCIENCES

NATIONAL RESEARCH COUNCIL

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FISCAL YEAR
1944–1945

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1946

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For Sale by the
Superintendent of Documents
U. S. Government Printing Office, Washington 25, D. C.
Price 30 Cents

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LETTER OF TRANSMITTAL

NATIONAL ACADEMY OF SCIENCES,
Washington, D. C., June 28, 1946.

The Honorable KENNETH McKELLAR,
President pro tempore, United States Senate,
Washington, D. C.

SIR: I have the honor to transmit to you herewith the annual report of the National Academy of Sciences for the fiscal year ended June 30, 1945, as provided for in the act of incorporation approved March 3, 1863.

In normal course this report would have been submitted some months ago. As was the case last year, however, the extreme press of work on the officers of the Academy and National Research Council incident to the final stages of war and the month immediately following its conclusion greatly delayed its preparation.

Yours respectfully,

FRANK B. JEWETT, *President.*

ACT OF INCORPORATION

AN ACT To incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard,[1] at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden,[2] Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren,[2] United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Englemann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Giles,[3] United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherfurd, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California; their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

SEC. 2. *And be it further enacted*, That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, bylaws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division into classes, and all other matters needful or usual in such institution, and to report the same to Congress.

SEC. 3. *And be it further enacted*, That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States.

Galusha A. Grow,
Speaker of the House of Representatives.
Solomon Foote,
President of the Senate pro tempore.

Approved, March 3, 1863.
Abraham Lincoln, *President.*

AMENDMENTS

AN ACT To amend the act to incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National

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[1] The correct name of this charter member was F. A. P. Barnard.

[2] Declined.

[3] The correct name of this charter member was J. M. Gilliss.

Academy of Sciences, approved March third, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said Academy as provided in said act.

Approved, July 14, 1870.

AN ACT To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, and its several supplements be, and the same is hereby, authorized and empowered to receive bequests and donations and hold the same in trust, to be applied by the said Academy in aid of scientific investigations and according to the will of the donors.

Approved, June 20, 1884.

AN ACT To amend the act authorizing the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes, approved June twentieth, eighteen hundred and eighty-four, be, and the same is hereby, amended to read as follows:

"That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, be, and the same is hereby, authorized and empowered to receive by devise, bequest, donation, or otherwise, either real or personal property, and to hold the same absolutely or in trust, and to invest, reinvest, and manage the same in accordance with the provisions of its constitution, and to apply said property and the income arising therefrom to the objects of its creation and according to the instructions of the donors: *Provided, however,* That the Congress may at any time limit the amount of real estate which may be acquired and the length of time the same may be held by said National Academy of Sciences."

SEC. 2. That the right to alter, amend, or repeal this act is hereby expressly reserved.

Approved, May 27, 1914.

ANNUAL REPORT OF THE NATIONAL ACADEMY OF SCIENCES

PRESIDENT'S STATEMENT

During the year ended June 30, 1945, the officers and staff of the National Academy of Sciences and the National Research Council, as well as the hundreds of leading scientists, engineers, and physicians who served as committee members and collaborators without compensation, were engaged in activities most of which were closely related to the Nation's prosecution of the war effort. As measured by the total of dollars expended in the various main categories, the energies and resources of the Academy-Research Council were directed approximately three-fourths to work arising from requests from Federal departments and agencies and about one-fourth to programs financed by private funds. The activities in response to requests from the Government were predominantly in connection with the respective asking agencies' war-born scientific and technological problems.

Although it is planned to prepare and distribute, when time permits, a more complete report of the work of the Academy-Research Council during the period of the war, the following recapitulation of Government-requested work is presented in order to provide a background against which to offer some comments and conclusions relative to this organization's war experience. Information below includes the name of the asking agency, the period during which service was rendered, a short description of the subject work of the contract, and the funds provided for the Academy's actual cost of performance. Space will not permit even a résumé of the manner in which the problems were approached and advice furnished, nor is it possible to report here the outcomes and the utilization of those outcomes in the operations of the asking agencies.

The position of the National Academy of Sciences and its permanent operating agency, the National Research Council, is unique in the structure of American science.

The Academy was incorporated by Congress on March 3, 1863, to provide a mechanism which would afford to Government at all times the best unbiased advice in all the fields of science and technology which the Nation possessed or could obtain. The act of incorporation gave the Academy the widest possible latitude in the management of its affairs to the end that this objective could be insured. It also obligated the Academy to give advice and services without compensation (i. e. no profit) "whenever requested" by a department of Government.

The National Research Council was established by the Academy in 1918 as a permanent agency in response to an Executive order issued by President Wilson.

Under these two acts of establishment the Academy is at all times in position to command the uncompensated assistance of the ablest scientists in the Nation on any question presented to it.

While the act of incorporation provides that the Academy shall be reimbursed for actual expenses incurred in performing services requested, the "no compensation whatever" provisions mean that the Academy has never received any money from Government in support of its general operations. This is as it should be if the Academy is to be maintained in its position of absolute impartiality.

Government Contracts

CIVIL AERONAUTICS ADMINISTRATION

Selection and training of aircraft pilots, July 1, 1940, to June 30, 1945, $663,500

Studies and investigations in the selection and training of aircraft pilots; advice with regard to the most desirable qualifications of aircraft pilots and to selection and training procedures.

Civilian pilot training, testing of applicants, June 1, 1942, to January 31, 1943, $110,504

Administration and scoring of qualifying aptitude tests to candidates for elementary and secondary training in the civilian pilot training program.

Training institute for secondary instructors, March 9, 1943, to February 4, 1944, $7,500

Assistance to the War Training Service Standards Division in the preparation of material on theory, technique, and psychology of instruction to be given in secondary instructor schools.

DEFENSE PLANT CORPORATION

Aluminum salvage project, December 8, 1944, to June 30, 1945, $10,000

Survey and recommendations with regard to the metallurgical techniques best adapted to the conversion of aluminum structures into aluminum ingot form, with a view to the production of such ingot product of the best practicable qualities adapted for use in industry.

DEPARTMENT OF LABOR

Survey of schools of osteopathy, June 12, 1943, to June 30, 1944, $15,000

A survey of schools of osteopathy and of a number of schools of medicine; a study of licensure to practice medicine or osteopathy in the several States; and a report to the Children's Bureau based on results of these studies and surveys.

NAVY DEPARTMENT

Ship stabilization, July 1, 1940, to June 30, 1942, $4,000

A study of various devices proposed for stabilizing ships against rolling and advice to the Bureau of Construction and Repairs concerning effective adaptability of one or more of such devices to naval vessels, and recommendations with respect to the broad question of ship stabilization and the direction which further investigation, if any, should take.

Analysis of naval positions and tasks, October 1, 1943, to April 30, 1944, $9,700

Advice to the Bureau of Personnel in establishing procedures and techniques for job analyses and description of naval billets in connection with the training and placement programs of the Department.

Design and construction of airships, July 1, 1940, to June 30, 1941, $2,500

Continuation of a consultative function including consideration and review of such general problems of airship design and construction as may be referred to the Academy by the Secretary of the Navy.

General advisory services, July 1, 1940, to June 30, 1941, $3,600

Review and analysis of scientific and technological problems submitted by the Secretary of the Navy and recommendations from the Academy to the Secretary on investigative studies.

WAR DEPARTMENT

Aircraft production survey, July 1, 1940, to June 30, 1941, $50,000

A survey and report to the Air Corps, United States Army, covering the existing factors which affect increased output of aircraft, aircraft engines, and accessories in the United States.

Air Corps problems, July 1, 1940, to June 30, 1941, $21,000

Continuation of (1) study of rocket and jet propulsion applications; (2) study of de-icing of windshields and antenna masts and bombardiers' windows on all types of aircraft, including those with pressure cabin; (3) study of the possibility for the development of a true plastic material for aircraft construction; (4) a study to reduce reflection from glass and plastic surfaces; and (5) a study of the use of artificial radioactive compounds in luminous materials.

Biological warfare, November 10, 1941, to June 30, 1945, $35,000

Advice and reports to the Chemical Warfare Service regarding certain aspects of biological warfare.

Design of protective structures, July 1, 1940, to October 31, 1944, $355,000

Investigations and reports to the Corps of Engineers covering the basis of design of structures to provide protection to personnel and installations both military and civil against projectiles and bombs.

Supersonic wind tunnel, July 1, 1940, to June 30, 1941, $1,000

An examination and report to the Ordnance Department on the question of the uses of a supersonic wind tunnel as adapted to the study of ballistic problems.

Mine field clearance, August 1, 1943, to September 30, 1943, $10,000

Advice and recommendations to the Engineer Board with regard to possible devices suitable for the effective detonation of mine fields in enemy defensive positions.

Food composition, January 1, 1945, to June 30, 1945, $79,150

Analysis of foods and physiological studies in connection with subsistence items of the Office of the Quartermaster General.

Quartermaster Corps problems, June 1, 1943, to June 30, 1945, $962,500

Studies (under subcontracts with industrial and institutional organizations) and advice relating to problems arising in the Office of the Quartermaster General with regard to textiles, leather and footwear, plastics, insecticides, personal equipage, and other quartermaster items. Work started under auspices of the Office of Scientific Research and Development transferred to the War Department December 21, 1944.

FEDERAL SECURITY AGENCY

Military medicine, January 2, 1941, to June 30, 1941, $117,050

Studies, surveys, advisory services, and reports to the Surgeons General of the Army, Navy, and Public Health Service and to other departments and agencies of Government concerned with military medicine and other medical research problems.

Food, nutrition, and food habits, May 1, 1941, to June 30, 1943, $144,600

Advisory services and recommendations to the Office of Defense Health and Welfare Service in connection with problems relating to food, nutrition, and food habits.

FEDERAL WORKS AGENCY

Highway research, July 1, 1940, to June 30, 1945, $100,000

The development of a national program for highway research; information and advice concerning the work of various research agencies engaged in the promotion of economy and improvement in the construction, administration, and maintenance of highways.

COUNCIL OF NATIONAL DEFENSE

Strategic materials, July 12, 1940, to June 30, 1941, $10,000

Experiments, investigations, and studies in connection with scientific problems relating to manganese, tin, and other strategic materials as requested by the Minerals Division of the Advisory Commission of the Council of National Defense.

OFFICE FOR EMERGENCY MANAGEMENT

Strategic materials, July 1, 1941, to June 30, 1942, $30,000

Experiments, investigations, and studies in connection with scientific problems relating to strategic, critical, and essential materials, as requested by the Office for Emergency Management.

Research laboratories, July 25, 1941, to June 30, 1942, $10,500

Prepare and furnish a list of institutions situated in the United States and outlying possessions which maintain bona fide research laboratories; reports on special subjects relating to scientific laboratories, instruments, and equipment.

OFFICE OF SCIENTIFIC RESEARCH AND DEVELOPMENT

General services contract, October 14, 1940, to September 30, 1943, $20,000

Studies and reports upon miscellaneous subjects, including: (1) Perceptual investigations, (2) concrete ships, (3) beryllium, (4) optical plastics.

Eutectic diagrams, November 7, 1940, to November 7, 1941, $5,000

A report on eutectic diagrams of ammonium compounds.

Sound control, November 10, 1940, to June 30, 1942, $174,000

Studies and investigations in connection with noise levels, the effects of noise, and methods and materials for noise reduction in combat vehicles, and other aspects of air-borne sound including the adequacy and efficiency of interphone communication equipment in the presence of a high level of external noise, a research program aimed at analyzing the effects of airplane noises on the efficiency and well-being of aircraft personnel; a study of the feasibility of developing a directional acoustic microphone for plane following.

Brake problems, November 29, 1940, to June 30, 1943, $20,000

Research on improvement of aircraft brakes.

Illuminating devices, December 1, 1940, to January 31, 1941, $3,000

Studies, investigations, and report on luminosity of airplane engine, exhaust, plumes, and methods for reducing this luminosity.

Scientific and technical personnel, May 1, 1941, to August 31, 1943, $92,500

An investigation of the availability of and new sources of information concerning scientific and technical personnel; appraisal and evaluation of the qualifications of such personnel and reports and recommendations with respect thereto.

Chemical compounds, October 1, 1941, to March 31, 1942, $3,200

Studies and investigations in connection with the separation of metanitrotoluene from the ortho and para compounds by the use of solvents, and other studies of chemical substances and reactions.

Military medicine, November 1, 1941, to June 30, 1945, $972,206

Studies, surveys, advisory services, and reports to the Surgeons General of the Army, Navy, and Public Health Service and to other departments and agencies of Government concerned with military medicine and other medical research problems, including review and recommendations with respect to proposals involving approximately $23,000,000 for medical research contracts written by the Committee on Medical Research of the Office of Scientific Research and Development.

Metallurgical problems, November 15, 1941, to June 30, 1945, $509,500

Advisory services to the National Defense Research Committee, the formulation of research programs, recommendations for the establishment and placement of contracts, advice and supervision of OSRD research contracts of approximately $4,500,000 in the following fields: Aircraft materials, armor plate, guns and ammunition, heat-resisting alloys, welding (armor and ordnance, ships, and ship steels), foundry materials and processes, enemy matériel, miscellaneous materials of war.

Selection and training of service personnel, July 1, 1942, to August 31, 1945, $130,000

Studies and investigations of devices and tests needed by the Army and Navy in the selection, classification, training, and related problems concerned with the most effective use of manpower in the services.

WAR FOOD ADMINISTRATION

Medical food requirements, April 29, 1943, to June 30, 1945, $21,900

Advice and assistance to the Director of Food Distribution Administration of the War Food Administration in matters relating to special foods and dietary needs in the special fields of internal medicine, surgery, obstetrics, pediatrics, dermatology, and metabolism.

Food, nutrition, and food habits, July 1, 1943, to June 30, 1945, $122,000

Advice and recommendations upon problems relating to food, nutrition, and food habits in connection with the program of the Office of Distribution, War Food Administration.

WAR PRODUCTION BOARD

Materials and material substitutes, July 1, 1942, to March 31, 1945, $337,500

Investigations, studies, and surveys in connection with materials, material substitutes, and other subjects relating to the functions of the War Production Board, including advisory and supervisory services in the field of metallurgy relating to approximately $1,500,000 of WPB research contracts on the following subjects: Alumina production, magnesium production, mica processing, iron and steel processes, conservation and substitution, miscellaneous production, diamonds; advice and reports with regard to the availability of and requirements for essential drugs and medical supplies; a survey and report upon the laboratory facilities of industrial and institutional research organizations in the United States.

In addition to the work under the above contracts, grants-in-aid in the amount of $56,130 from the Coordinator of Inter-American Affairs were received and administered in connection with the following subjects: Industrial survey of South America; bibliographic service to Central and South America; engineering information service; compilation of a bibliography of American scientific, technical, and medical books.

The war period served to define more clearly and to demonstrate more effectively the attributes of the Academy-Research Council organization which, by virtue of the wisdom of Congress as noted above, provides the Government with a unique device by means of which expert advice and assistance with reference to scientific and technological matters may be obtained expeditiously and economically. Also, this war experience caused this organization as well as those agencies that requested its assistance to acquire a keener appreciation of the principles and procedures (relating to the operations of the NAS-NRC) most likely to prove successful in the approach to and solution of problems in which scientific evidence is a factor.

More specifically, the experience during the war years has demonstrated, in my opinion, the validity of the following premises:

(1) The Academy-Research Council, can, by virtue of its broad representation of American science, render very effective service in relation to a problem the solution of which must be provided from the backlog of currently available knowledge of science and the useful arts;

(2) The value of the NAS-NRC in this respect is even more evident in cases where the problem transcends the scope of one scientific discipline and depends for its solution upon the marshaling of the resources of several fields of science;

(3) The professional advisory and consultative services referred to above may be successfully combined with an operating function such as the administration and supervision of research subcontracts or the operation of a scientific abstracting and information service, provided the operating function is subsidiary to the main function of providing advice relative to the asking agency's own research or technical program, and provided, also, the asking agency specifies that the initiative for the design of the research and developmental investigations, as well as their supervision, shall rest with the Academy-Research Council;

(4) The NAS–NRC can be helpful to agencies in the appraisal of proposed research programs and projects and in the evaluation of reported outcomes from such studies and investigations;

(5) The NAS–NRC is peculiarly well prepared, by means of conferences and forums called for the purpose, to provide an administratively simple mechanism whereby there may be a free and productive exchange of information among the various branches of the military services and with civilian scientists (either in or out of Government) which, experience has shown, gives each group a truer appreciation of the problems of the other groups and permits each to proceed in its own program with a knowledge of the programs of the other groups;

(6) By fostering and encouraging the cooperative efforts of civilian scientists, administrators of governmental agencies, and representatives of the military services, the NAS–NRC is able to help shorten the period of time which normally elapses between the emergence of discoveries and new developments in fundamental research and the application of those discoveries and developments in the solution of specific problems;

(7) Since, in the policy decisions by which the programs of Federal agencies are established and conducted, there is often a preponderance of nonscientific factors, it is incumbent upon the NAS–NRC to observe meticulously the field of its own competence and to be concerned only that the scientific factors, based upon unimpeachable evidence and offered without bias, are presented for consideration at the appropriate time and with the appropriate emphasis.

Because of the basic advisory character of much of the work done by the Academy and Research Council in response to requests for assistance from departments of Government, the money for actual expenses incurred and provided for in the Academy contracts is usually not a measure of the magnitude of the undertaking to which they relate.

In the tabulations above, biological warfare, strategic materials, and supersonic wind tunnel, among others, are examples.

In the case of biological warfare the whole vast War Department undertaking to develop adequate defenses against this form of warfare, should it be employed against us, was based initially on the report and recommendations of a special Academy committee requested by the Secretary of War. Further, all subsequent work was under the general supervision of a continuing Academy-Research Council committee.

Similarly for the Ordnance Department the feasibility and basis of design of supersonic velocity wind tunnels involving great expenditures and a complete change in the techniques of ordnance design were predicted on the results of an Academy committee composed of the Nation's most competent experts in this field.

The advisory work of the Academy on strategic materials for OPM and WPB served throughout the war as the scientific and technical basis on which decisions affecting huge industrial operations were made.

While not listed as a separate contract service since the cost was small and was covered by the OSRD general service contract (supra), the whole vast operation of the Manhattan District which led to the production of the atomic bomb was based on the study and report of an Academy committee of distinguished scientists appointed in 1941 at the request of OSRD to survey the military possibilities of atomic fission.

FRANK B. JEWETT, *President*.

JUNE 27, 1946.

MEETINGS OF THE NATIONAL ACADEMY

AUTUMN MEETING, 1944

The 1944 autumn meeting of the National Academy of Sciences was held on November 15, 1944, in the Academy Building, Washington, D. C.

BUSINESS SESSION

Seventy-nine members responded to roll call, as follows:

Adams, L. H.
Adams, Roger
Bard, Philip
Berkey, Charles P.
Briggs, Lyman J.
Bucher, Walter H.
Buckley, Oliver E.
Bush, V.
Cannon, W. B.
Carlson, A. J.
Carmichael, Leonard
Clark, W. Mansfield
Clarke, Hans T.
Coblentz, W. W.
Cohn, Edwin J.
Compton, Karl T.
Corner, George W.
Curme, George O., Jr.
Day, Arthur L.
Dryden, Hugh L.
DuBois, Eugene F.
DuBridge, L. A.
Dunbar, Carl O.
Durand, W. F.
du Vigneaud, Vincent
Elvehjem, C. A.
Fenn, Wallace O.
Fleming, John A.
Fletcher, Harvey
Gregory, William King
Harrison, Ross G.
Harvey, E. Newton
Hecht, Selig
Houston, W. V.
Hull, Clark L.
Hunsaker, J. C.
Hunter, Walter S.
Ipatieff, V.
Ives, Herbert E.
Jeffries, Zay
Jewett, Frank B.
Knopf, Adolph
Larsen, Esper S., Jr.
Latimer, Wendell M.
Lawrence, Ernest O.
Leith, C. K.
Longwell, Chester R.
Loomis, Alfred L.
MacNider, William deB.
Macelwane, James B., S. J.
Maynard, Leonard A.
Mead, Warren J.
Mendenhall, W. C.
Miles, Walter R.
Millikan, R. A.
Mitchell, S. A.
Morse, Marston
Moulton, F. R.
Murnaghan, F. D.
Murphy, James B.
Noyes, W. Albert, Jr.
Rabi, I. I.
Robbins, William J.
Rodebush, W. H.
Small, Lyndon F.
Stakman, E. C.
Stanley, W. M.
Streeter, George L.
Sturtevant, A. H.
Tate, John T.
Thom, Charles
Vaughan, T. Wayland
Veblen, Oswald
von Karman, T.
von Neumann, John
Waksman, Selman A.
Wilson, E. B.
Wright, F. E.
Zworykin, V. K.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE ANNUAL MEETING

Members

George David Birkhoff, born March 21, 1884; elected to the Academy in 1918; died November 12, 1944.

Thomas Midgley, Jr., born May 18, 1889; elected to the Academy in 1942; died November 2, 1944.

Harry Fielding Reid, born May 18, 1859; elected to the Academy in 1912; died June 18, 1944.

BIOGRAPHICAL MEMOIRS READ BY TITLE

William M. Davis, by Reginald Daly.
Edward Murray East, by D. F. Jones.
Aleš Hrdlička, by Adolph Schultz.

William G. MacCallum, by Warfield T. Longcope.
C. Hart Merriam, by W. H. Osgood.
Ralph Modjeski, by W. F. Durand.
Stephen Walter Ranson, by Florence Sabin.

SECTION OF MATHEMATICS

Announcement was made of the interim appointment of Solomon Lefschetz as chairman of the Section of Mathematics to succeed Marshall Stone, resigned, for the term ending with the annual meeting in 1946.

REPORTS OF THE TREASURER AND AUDITING COMMITTEE

The report of the treasurer of the Academy for the fiscal year 1943-44 was presented and, upon recommendation by the Council of the Academy, was accepted for inclusion in the printed Annual Report of the National Academy of Sciences for that period.

The report of the auditing committee was presented and, upon recommendation by the Council of the Academy, was accepted for inclusion in the same printed Annual Report.

These reports appeared on pages 49-74 of the Annual Report of the National Academy of Sciences for the fiscal year 1943-44.

REPORT OF THE COMMITTEE ON THE JOHN J. CARTY FUND

Upon recommendation of the committee on the John J. Carty Fund, it was voted to award the Medal and an honorarium of $2,500 for the year of 1945 to William F. Durand.

TRANSFER TO ROLL OF MEMBERS EMERITI

Upon recommendation of the Council of the Academy and upon the request of the members mentioned, Reid Hunt and E. L. Mark, it was voted that their names be transferred to the roll of members emeriti.

PRESENTATION OF MEDALS

At the dinner of the Academy on Wednesday evening, November 15, 1944, the following awards were presented:

Daniel Giraud Elliot Gold Medal and certificate with accompanying honorarium

For 1938, to Malcolm Robert Irwin, of the University of Wisconsin, for his work, Immuno-genetic Studies of Species Relationships in Columbidae.

For 1939, to John Howard Northrop, Rockefeller Institute for Medical Research, Princeton, N. J., for his work, Crystalline Enzymes: The Chemistry of Pepsin, Trypsin, and Bacteriophage.

For 1940, to William Berryman Scott, of Princeton University, for his work, The Mammalian Fauna of the White River Oligocene. Part IV. Artiodactyia.

Mary Clark Thompson Gold Medal and honorarium

For 1942, to Edward Wilber Berry, of Johns Hopkins University, for outstanding contributions to knowledge of the Mesozoic and Cenozoic floras of North, Central, and South America, and the Antilles, in their relations to stratigraphy, the ecology and geographic distribution of past flores, and the evolution of the different groups of flowering plants.

For 1943, to George Gaylord Simpson, of the American Museum of Natural History, for his outstanding contributions in the field of vertebrate paleontology, including a study of the Mesozoic mammals, and distinction as a field collector, systematic paleontologist, and original thinker on broad problems of evolution.

For 1944, to William Joscelyn Arkell, of Wellington College, New College, Oxford, now with the Ministry of War Transport, for his outstanding contributions to paleontology and geology, including intensive studies of stratigraphic units of different geologic age in widely separate regions, British Jurassic faunas, the history of the region of Great Britain in Jurassic times, paleoecology, the late Neogene history of the Nile region, and other services, all leading to important publications. (The medal was transmitted to Professor Arkell through diplomatic channels.)

PRESENTATION TO THE ACADEMY OF THE ORDNANCE DISTINGUISHED-SERVICE AWARD

Maj. Gen. G. M. Barnes, on behalf of the Ordnance Department of the United States Army, presented the Ordnance distinguished-service award to the National Academy of Sciences "in recognition of outstanding and meritorious scientific services, in war and peace, for the development, manufacture, and maintenance of ordnance matériel, authorized July 20, 1944."

SCIENTIFIC SESSIONS

At the scientific sessions, held in the auditorium of the National Museum, Washington, D. C., the following papers were presented by invitation:

Wednesday, November 15, 1944

Wilmot H. Bradley, United States Geological Survey: Geology as an implement of war.

Francis W. Reichelderfer, United States Weather Bureau: Meteorology and the war.

Zay Jeffries, General Electric Co.: Metallurgy and the war.

Maj. Gen. G. M. Barnes, Office of the Chief of Ordnance: American science and industry in war (illustrated).

Thursday, November 16, 1944

Commander J. Murray Steele, Naval Medical Research Institute: Pressure breathing—certain aspects of its military and therapeutic significance.

Detlev W. Bronk, University of Pennsylvania: The physiological basis of engineering advances in military aviation.

Eugene F. DuBois, Cornell University: The anatomy and physiology of the airplane cockpit.

C. A. Elvehjem, University of Wisconsin: Studies on the synthesis of vitamins in the intestinal tract.

W. F. Hutchinson, University of Pennsylvania: The deterioration of equipment and materials in the tropics.

Chester S. Keefer, Evans Memorial Hospital, Boston, Mass.: The story of penicillin (illustrated).

C. N. H. Long, Yale University: Treatment of shock—some physiological aspects of shock.

John S. Lockwood, Yale University: Treatment of shock—clinical aspects of shock.

Brig. Gen. James S. Simmons, Office of the Surgeon General: Research, the key to military preventive medicine (read by Brig. Gen. S. Bayne-Jones).

Brig. Gen. S. Bayne-Jones, Office of the Surgeon General: Control of typhus.

ANNUAL MEETING, 1945

The National Academy of Sciences held its annual meeting in the Academy Building, Washington, D. C., on April 23 and 24, 1945. The meeting was restricted to business sessions for consideration of reports and general business of the Academy. No scientific papers were presented. Attendance at the meeting was confined to Academy members.

BUSINESS SESSION

One hundred and seventeen members responded to roll call, as follows:

Adams, L. H.
Adams, Roger
Adkins, Homer
Bard, Philip
Beams, J. W.
Blakeslee, A. F.
Bogert, Marston Taylor
Boring, Edwin G.
Bowen, Norman L.
Breit, G.
Briggs, Lyman J.
Bronk, Detlev W.
Bucher, Walter H.
Buckley, Oliver E.
Buddington, A. F.
Bush, V.
Carlson, A. J.
Carmichael, Leonard
Clark, W. Mansfield
Coble, Arthur B.
Coblentz, W. W.
Cohn, Edwin J.
Compton, Arthur H.
Compton, Karl T.
Condon, E. U.
Corner, George W.
Curme, George O., Jr.
Day, Arthur L.
Dobzhansky, Theodosius
Dochez, A. R.
Dodge, B. O.
Dryden, Hugh L.
Dunbar, Carl O.
Dunn, L. C.
Durand, W. F.
Eisenhart, L. P.
Evans, Griffith C.
Fleming, John A.
Fletcher, Harvey
Forbes, Alexander
Franck, James
Fred, E. B.
Fuson, R. C.
Gasser, Herbert S.
Goodpasture, Ernest W.
Harrison, Ross G.
Hecht, Selig
Hewett, D. F.
Hildebrand, Joel H.
Hubble, Edwin
Hudson, Claude S.
Hull, Albert W.
Hunsaker, J. C.
Hunter, Walter S.
Ipatieff, V.
Jeffries, Zay
Jewett, Frank B.
Jones, D. F.
Kasner, Edward
Kidder, A. V.
Kirkwood, John G.
Knopf, Adolph
Kunkel, L. O.
Langmuir, Irving
Latimer, Wendell M.
Lauritsen, Charles C.
Lefschetz, Solomon
Leith, C. K.
Lewis, W. K.
Longcope, Warfield T.
Longwell, Chester R.
MacInnes, Duncan A.
MacNider, William deB.
Marvel, C. S.
Maynard, Leonard A.
Mendenhall, W. C.
Merrill, E. D.
Miles, Walter R.
Millikan, R. A.
Mitchell, S. A.
Morse, Marston
Moulton, F. R.
Murnaghan, F. D.
Murphy, James B.
Opie, Eugene L.
Rabi, I. I.
Richards, Alfred N.
Riddle, Oscar
Robbins, William J.
Rodebush, W. H.
Romer, Alfred S.
Russell, Henry Norris
Shaffer, Philip A.
Shapley, Harlow
Small, Lyndon F.
Smith, Lee Irvin
Stanley, W. M.
Stone, Calvin P.
Streeter, George L.
Taliaferro, William H.
Tate, John T.
Thom, Charles
Tolman, Richard C.
Urey, Harold C.
Van Vleck, J. H.
Vaughan, T. Wayland
Veblen, Oswald
Vickery, H. B.
von Karman, T.
von Neumann, John
Webster, D. L.
Wilson, E. B.
Woodworth, R. S.
Wright, F. E.
Wright, Sewall
Yerkes, Robert M.
Zworykin, V. K.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE AUTUMN MEETING

Members

William Trelease, born February 22, 1857; elected to the Academy in 1902; died January 1, 1945.

William Henry Howell, born February 20, 1860; elected to the Academy in 1905; died February 6, 1945.

Lewis Ralph Jones, born December 5, 1864; elected to the Academy in 1920; died April 1, 1945.

Foreign associates

Sir Arthur Stanley Eddington, of Cambridge, England; elected a foreign associate in 1925; died November 21, 1944.

Albrecht Penck, of Berlin and Prague; elected a foreign associate in 1909; died March 9, 1945.

BIOGRAPHICAL MEMOIRS ASSIGNED SINCE THE AUTUMN MEETING

William H. Howell, assigned to Joseph Erlanger.
Edward Burr Van Vleck, assigned to Griffith C. Evans.

BIOGRAPHICAL MEMOIRS READ BY TITLE

Russell Henry Chittenden, by H. B. Vickery.
Frank Schlesinger, by Dirk Brouwer.

APPOINTMENTS

Tellers to count the preference ballots: W. F. Durand, chairman; Hugh L. Dryden, D. F. Hewett.

Auditing committee: W. C. Mendenhall, chairman; Arthur L. Day, Claude S. Hudson.

Committee on Biographical Memoirs: W. F. Durand, Edwin G. Conklin as members.

TRUST FUND COMMITTEE APPOINTMENTS

John J. Carty Fund.—Vannevar Bush reappointed for a further term of 5 years ending with the annual meeting in 1950.

Cyrus B. Comstock Fund.—L. A. DuBridge, member, for a 5-year term ending with the annual meeting in 1950.

Henry Draper Fund.—Joel Stebbins, chairman; term as member ending with the annual meeting in 1948. Walter S. Adams, member, for a term of 5 years ending with the annual meeting in 1950.

Daniel Giraud Elliot Fund.—Samuel R. Detwiler as additional member for a term of two and a half years, i. e., until the end of the fiscal year June 30, 1947.

Marcellus Hartley Fund.—A. R. Dochez, chairman; term as member ending with the annual meeting in 1947. Edwin G. Conklin and Harlow Shapley, members, for terms of 3 years ending with the annual meeting in 1948.

Joseph Henry Fund.—Detlev W. Bronk, chairman; term as member ending with the annual meeting in 1948. Walter S. Hunter, member, for a term of 5 years ending with the annual meeting in 1950.

Marsh Fund.—W. C. Mendenhall, chairman; term as member ending with the annual meeting in 1946. Edmund W. Sinnott, member, for a term of 5 years ending with the annual meeting in 1950.

Murray Fund.—G. H. Parker, chairman; term as member ending with the annual meeting in 1946. T. Wayland Vaughan, member, for a term of 3 years ending with the annual meeting in 1948.

J. Lawrence Smith Fund.—S. A. Mitchell, chairman; term as member ending with the annual meeting in 1947. V. M. Slipher, member, for a term of 5 years ending with the annual meeting in 1950.

Mary Clark Thompson Fund.—W. C. Mendenhall, member, for a term of 3 years ending with the annual meeting in 1948.

Charles Doolittle Walcott Fund.—Carl O. Dunbar as member and temporary chairman. Alexander Wetmore as representative of the Smithsonian Institution.

SECTION CHAIRMEN ELECTED BY THE SECTIONS FOR THE 3-YEAR TERM ENDING WITH THE ANNUAL MEETING IN 1948

Section of physics.—Edwin C. Kemble to succeed Raymond T. Birge.

Section of geology.—D. F. Hewett to succeed Chester R. Longwell.

Section of physiology and biochemistry.—Donald D. Van Slyke to succeed Herbert S. Gasser.

Section of pathology and bacteriology.—Ernest W. Goodpasture to succeed E. L. Opie.

TEMPORARY NOMINATING GROUPS APPOINTED BY THE ADVISORY COMMITTEE ON MEMBERSHIP BY MAIL VOTE, JANUARY 18, 1945, FOR A 3-YEAR PERIOD BEGINNING JULY 1, 1945

Field of anthropology.—A. V. Kidder, chairman; E. A. Hooton, A. L. Kroeber, Robert H. Lowie, Adolph H. Schultz, John R. Swanton, Alfred M. Tozzer, Clark Wissler.

Field of psychology.—Edwin G. Boring, chairman; James R. Angell, Leonard Carmichael, John Dewey, Clark L. Hull, Walter S. Hunter, K. S. Lashley, Walter

R. Miles, W. B. Pillsbury, C. E. Seashore, Calvin P. Stone, G. M. Stratton, Lewis M. Terman, Edward L. Thorndike, L. L. Thurstone, Edward C. Tolman, E. G. Wever, R. S. Woodworth, Robert M. Yerkes.

ACADEMY REPRESENTATIVE ON BOARD OF TRUSTEES OF SCIENCE SERVICE

Harlow Shapley reappointed for a further term of 3 years ending with the annual meeting in 1948.

(Other National Academy of Sciences representatives on the board of trustees of Science Service: Warren H. Lewis, 1946; Robert A. Millikan, 1947.)

RESIGNATION OF ISAIAH BOWMAN AS VICE PRESIDENT

The resignation of Isaiah Bowman as vice president of the Academy, to be effective immediately, was accepted.

DUES

The recommendation of the Council of the Academy that dues for membership in the Academy for the year ending with the annual meeting in 1946 be $10, was approved.

AMENDMENT OF THE BYLAWS

Section V, article 5, of the bylaws was amended to read:

> The accounts of the treasurer shall, between July 1 and October 1 of each year, be audited under the direction of a committee of three members to be appointed by the president at the annual meeting of the Academy.

REPORT OF THE HOME SECRETARY

Since the last annual meeting, seven additional Biographical Memoirs have been sent to press and are now in proof.

Six members and two foreign associates have died since the last annual meeting, as follows:

Members

Harry Fielding Reid, born May 18, 1859; elected to the Academy in 1912; died June 18, 1944.

Thomas Midgley, Jr., born May 18, 1889; elected to the Academy in 1942; died November 2, 1944.

George David Birkhoff, born March 21, 1884; elected to the Academy in 1918; died November 12, 1944.

William Trelease, born February 22, 1857; elected to the Academy in 1902; died January 1, 1945.

William Henry Howell, born February 20, 1860; elected to the Academy in 1905; died February 6, 1945.

Lewis Ralph Jones, born December 5, 1864; elected to the Academy in 1920; died April 1, 1945.

Foreign associates

Sir Arthur Stanley Eddington, of Cambridge, England; elected a foreign associate in 1925; died November 21, 1944.

Albrecht Penck, of Berlin and Prague; elected a foreign associate in 1909; died March 9, 1945.

There are now 344 members, 5 members emeriti, and 38 foreign associates.

F. E. Wright, *Home Secretary*

Report accepted.

REPORTS OF TRUST FUNDS

ALEXANDER DALLAS BACHE FUND

During the past year the board of directors of the Alexander Dallas Bache Fund of the National Academy of Sciences made the following grant:

No. 400 for $500 to Dr. C. C. Little, Jackson Memorial Laboratory, Bar Harbor, Maine, for work on deficiency in vitamin inositol in normal and abnormal growth.

The assistant business manager of the Academy reports $9,843.32 as available for grants as of the date of March 15, 1945.

W. J. V. Osterhout.
Sewall Wright.
Edwin B. Wilson, *Chairman.*

Report accepted.

BARNARD MEDAL FOR MERITORIOUS SERVICE TO SCIENCE

The committee on the Barnard Medal for meritorious service to science unanimously recommends that on the present occasion the award be passed.

The reason for this action is the fact that directly or indirectly the war has blanketed much of the evidence which should be considered for a competent award.

Edwin P. Hubble, *Chairman.*

Report accepted.

CYRUS B. COMSTOCK FUND

For reasons of security the Comstock prize award in 1943 has not yet been presented.

The next award is scheduled for 1948 and has not yet received consideration.

The financial status of this fund, as reported by the assistant business manager, is as follows:

Principal:	
Invested	$14, 863. 68
Cash (uninvested)	136. 32
Income:	
Invested	960. 00
Cash (uninvested)	7, 339. 36

C. J. Davisson, *Chairman.*

Report accepted.

HENRY DRAPER FUND

The committee on the Henry Draper Fund has the honor to report that by a unanimous vote it wishes to recommend to the Academy the award of the Draper Medal for 1945 to Dr. Paul W. Merrill, astronomer in the Mount Wilson Observatory of the Carnegie Institution, for his many important contributions to astronomical physics; in particular, those relating to his researches in stellar spectroscopy.

For many years Dr. Merrill has been one of the most active and successful spectroscopists in the field of peculiar stellar spectra, in the investigation of the spectra of variable stars, in the application of photographic plates sensitive to the infrared in stellar spectroscopy, and in the adaptation of gratings to astrophysical investigations in the red and infrared.

Dr. Merrill's extended studies of the bright lines present in the spectra of the blue stars of class Be, and of those in the spectra of the red stars of class Me, have contributed greatly to our knowledge of the physical processes in stellar atmospheres responsible for the emission of radiations of this type. His identification of the numerous bright lines in the peculiar spectrum of eta Carinae with those due to forbidden transitions in ionized iron is a most striking example of his brilliant spectroscopic researches which have led to results of great astrophysical significance.

The status of the Henry Draper Fund as of February 28, 1945, is as follows:

Principal, invested	$10, 000. 00
Income, cash balance	1, 869. 77

J. H. Moore, *Chairman.*

Recommendation approved and report accepted.

DANIEL GIRAUD ELLIOT FUND

As chairman of the Daniel Giraud Elliot Medal committee, I submit the report of the awards for 1941, 1942, and 1943. The recommendations of the committee are as follows:

1941: Th. Dobzhansky, for "Genetics and the Origin of Species" (second edition).

1942: D'Arcy Thompson, for "On Growth and Form" (revised and enlarged, 1942).

1943: Karl Spencer Lashley, for "Studies of Cerebral Function in Learning" (Journ. Comp. Neurol., 1943, vol. 79: 431–462).

Thomas Barbour.
Samuel R. Detwiler.
A. H. Sturtevant.
William K. Gregory, *Chairman.*

Recommendations approved and report accepted.

It was voted to refer to the Council of the Academy the question of the desirability of making a review of the conditions of the granting of the Elliot medals.

BENJAMIN APTHORP GOULD FUND

The directors of the Benjamin Apthorp Gould Fund of the National Academy of Sciences have the honor to report to the Academy as follows:

In the period from March 31, 1944, to February 28, 1945, the following grant was made from the Gould Fund:

Grant No. 68: To Dr. Dirk Brouwer, Yale University, $800, for support of the publication of the Astronomical Journal, a grant made in conformity with the wish expressed by the donor, Alice Bache Gould, in the fifth paragraph of the letter accompanying the deed of trust.

The status of the Gould Fund as of February 28, 1945, was as follows:

Invested capital	$19, 851. 32	Uninvested capital	$148. 68
Invested income	9, 505. 00	Uninvested income	4, 198. 46
Total invested	29, 356. 32	Total not invested	4, 347. 14

Total invested and not invested, $33,703.46.

Walter S. Adams.
Joel Stebbins.
Forest R. Moulton, *Chairman.*

Report accepted.

MARCELLUS HARTLEY FUND

The committee on the Marcellus Hartley Medal award wishes to recommend Dr. Vannevar Bush for the award at the annual meeting of the Academy this month. The purpose of the Public Welfare Medal award through the Marcellus Hartley Fund is stated to be as follows:

"Patriotism and justice alike demand that certain public services involving the application of science should receive a conspicuous recognition at the hands of the National Academy of Sciences.

"It is the purpose of the Public Welfare Medal to mark the appreciation of the National Academy for eminent services to the public, performed without a view to great monetary gains and by methods which in the opinion of the Academy are truly scientific."

The Marcellus Hartley Fund committee therefore recommends the award of the Marcellus Hartley Medal for eminence in the application of science to the public welfare to Vannevar Bush in recognition of his outstanding service in bringing to bear the scientific and engineering talent of this country upon problems of research connected with the war effort.

It is now well understood that in modern war a nation is as truly dependent for success upon the quality and extent of its technical accomplishments as it is upon the valor and size of its armed forces. This has been amply borne out by the achievements of the remarkable research team now known as the Office of Scientific Research and Development which has applied so successfully under the wise and skillful guidance of Dr. Bush the great national asset of specialized training in such fields as physics, chemistry, medicine, and engineering in attack upon the many and difficult problems of research, the solution of which has had such an important effect upon our war effort.

WILLIAM J. ROBBINS, *Chairman.*

Recommendation approved and report accepted.

JOSEPH HENRY FUND

I. New grants: The committee of the Joseph Henry Fund has no recommendations to make for new grants at the present time.

II. Status of the fund: The bursar of the Academy reports the invested capital of the fund as $45,163.50, and the uninvested income available for grants, as of March 16, 1945, $4,407.20. It is recommended that $2,000 of this latter amount be added to the capital fund.

R. T. BIRGE.
D. W. BRONK.
C. E. MCCLUNG.
R. C. TOLMAN.
W. R. MILES, *Chairman.*

Recommendation approved and report accepted.

MARSH FUND

The committee on the Marsh Fund reports that since it is unable to secure outstanding applicants, it is the opinion of the committee that it would be wise to save the funds for postwar days.

The cash balance of the Marsh Fund as of February 28, 1945, is $2,338.45.

E. B. FRED, *Chairman.*

Report accepted.

MURRAY FUND

The committee on the Agassiz Medal and Murray Fund reports that it has no name to recommend this year for the medal or for any portion of the accumulated income of the fund.

REGINALD A. DALY, *Chairman.*

Report accepted.

J. LAWRENCE SMITH FUND

Since the report to the annual meeting of the Academy in April 1944 certain suggestions which seemed worthy of the committee's attention have been submitted by Dr. O. R. Wulf of the University of Chicago for aid in a systematic short-time continuous survey for meteors to derive additional data in air movements in the high atmosphere; it was not possible to undertake a grant for this program because of wartime priorities for necessary instruments and primarily lack of available trained scientific personnel.

The five members of the committee have all voted that the J. Lawrence Smith Medal (No. 3) be awarded to Stuart H. Perry of Adrian, Mich. This recommendation is based on Mr. Perry's original investigations of meteoric bodies, the results of which have been made known to the public, such results being in the opinion of the committee of sufficient importance and benefit to science to merit the recommended award. The results of Mr. Perry's investigations since 1933 were published last year by the United States National Museum in that Museum's Bulletin 184 under the title "The Metallography of Meteoric Iron."

So far only two medals have been awarded: No. 1 in April 1888, to H. A. Newton for his investigation of the origin of meteors; and No. 2 in November 1921 (presented in 1922) to G. P. Merrill for his contributions to knowledge concerning the character of meteorites.

The last grant, No. 37, was made in October 1941; the total amount paid since 1894 in 37 grants to 17 different individuals is $19,085. The subjects may be classified as follows: (1) Apparatus to record photographically meteors and meteor trails and meteor spectrograms; (2) catalogs of meteor trains, meteor maps of the Southern Hemisphere, Antarctic meteors, long continued meteor trains, meteorites, and rare meteorites; (3) computations of orbits of meteors and fireballs; (4) observations of meteors and fireballs, expeditions for study of meteors in

Arizona and Kansas; and (5) researches on the nature of luminous trains of meteors on systematic studies of meteor trails, meteoric irons, character of meteorites, elements occurring in meteorites, and atomic weight of chlorine in meteorites.

The business manager of the Academy advised that on February 28, 1945, the fund consisted of invested capital of $10,000, invested interest $7,249.70, and cash (uninvested) $3,080.01, in total, $20,329.71.

The committee would welcome any suggestions by competent investigators for grants from the fund, the more so since the grants have been dormant since 1941 largely because of conditions attendant upon the present war.

John A. Fleming, *Chairman.*

Recommendation approved and report accepted.

MARY CLARK THOMPSON FUND

The committee on the Mary Clark Thompson Fund recommends as the recipient of the Mary Clark Thompson Medal and honorarium for the year 1945, Thomas Wayland Vaughan.

The scientific results of the five decades of Dr. Vaughan's research constitute a classical example of the great good that comes to the fields of stratigraphic geology and of palentology when the answers to their problems are sought through active participation in studies in modern ecology, oceanography, and sedimentation. It is a pleasure to contemplate the logic which led Dr. Vaughan inevitably from one of these fields into the next.

To a comprehensive mind, the first step, from local areal geology to the larger problems of regional correlation and stratigraphic history, is natural enough. His field work in many parts of the Coastal Plain from Georgia to Texas and in the Greater Antilles brought Dr. Vaughan early into contact with corals, then a neglected group, both as fossils and as members of modern faunas. He made their taxonomic mastery a major goal of his career, influenced no doubt by the work he did on corals for Alexander Agassiz as a graduate student at Harvard. Soon he found himself involved in the problem of coral facies and related questions. With characteristic vision and vigor Dr. Vaughan broadened his studies to include investigations on the physiological conditions and rate of coral growth, and the whole vast problem of the origin of coral reefs in general. But reefs are only one aspect of the larger problem of the formation of carbonate deposits and organic and chemical sediments in general. Here Dr. Vaughan's collaboration with the Carnegie Institution's Tortugas Laboratory brought about important studies by himself and others on the precipitation of calcium carbonate in tropical and temperate seas.

These investigations carried Dr. Vaughan so far into the field of physical oceanography that, in 1923, he was called to the position of professor of oceanography and the directorship of the Scripps Institution for Biological Research, which was to change its name to Scripps Institution of Oceanography of the University of California. The significance of this reorganization is seen in the program as announced by Dr. Vaughan in 1925. Besides the investigation of certain problems in ichthyology, the institution's work was to be devoted to the study of marine plancton, of organisms as geological agents, and as a basis of interpreting the record contained in marine sedimentary deposits. The Scripps Institution thus became the first institution in the United States that had for its major purpose the prosecution of research on the ocean and probably the first in the world to include the study of sediments as a major part of its program.

Here, then, he carried out actively the concerted attack on problems bearing on biology and paleontology, oceanography, and sedimentation which he had urged upon the newly created National Research Council 5 years before. It was he who organized the eminently fruitful committee on sedimentation and what was later called the committee on submarine configuration and oceanic circulation.

This Academy has recognized Dr. Vaughan's broad-gauged intellectual leadership in oceanography by presenting to him, in 1935, the Agassiz Medal for eminence in the science of the sea.

In spite of such intensive occupation with oceanographical matters, Dr. Vaughan kept his own work focused on his original field of research, the stratigraphy and paleontology of the post-Mesozoic formations of the American Mediterranean region. To his life-long study of the hexacorals he has added in the last 20 years that of the larger forminifers, especially the orbitoidids.

Ultimately, all these studies in such diverse fields—recorded in more than 150 papers, some of which are vertiable monographs—have served in his hand to broaden and deepen the understanding of the larger geological processes which have produced the Gulf Coast, the Floridian and Bahaman plateaus, the Greater and Lesser Antilles, and the borderlands west and south of the Caribbean Sea as we see them today.

It is in recognition of outstanding achievement in such purposeful and ingenious coordination of observations and generalizations made in, and bearing on, the fields of stratigraphic geology and paleontology that the Mary Clark Thompson Medal is to be bestowed. We, therefore, take great pleasure in presenting Dr. Thomas Wayland Vaughan as our choice for this year's award.

Eliot Blackwelder,
Warren J. Mead.
Walter H. Bucher, *Chairman.*

Recommendation approved and report accepted.

JAMES CRAIG WATSON FUND

Owing to war conditions no applications for grants have been received nor reports on previous grants. The preparation of the third memoir on general perturbations of minor planets of the Hecuba group, previously authorized, is necessarily delayed for the duration.

The assistant business manager reports the status of the Watson Fund as of February 28, 1945, to be as follows:

Principal:	
Invested	$24, 961. 92
Cash (uninvested)	38. 08
Income: Cash balance	7, 595. 29

A. O. Leuschner, *Chairman.*

Report accepted.

NATIONAL SCIENCE FUND

In the course of the fiscal year ending June 30, 1945, the chairmanship of the National Science Fund was transferred from Dr. William J. Robbins to Dr. Harlow Shapley. Funds under administration of the National Science Fund totaled $72,000 on June 30, 1945; in addition, $10,300 was available for the expense of operating the Fund and for administration of specific awards and grants.

It is worth noting that the expenditure for operating the National Science Fund since its formal establishment, in April 1941, has been approximtely $18,000 (in addition to organization expenses amounting to $7,900), and during the period a total of $85,000 has already been made available for support of science through the fund from other sources. The fund's operating expenses have been met from two grants received from the Carnegie Corp., totaling $25,000 plus contributions received for general operating expenses amounting to $992. Of the total amount of $25,992, a balance of approximately $100 remained on June 30, 1945. Operations of the original committee on a National Science Fund and of the fund itself have been conducted during a period of six full years within this budget.

During the spring of 1945, $5,000 was placed at the disposal of the National Science Fund by the Council of the Academy for general expenses and development of the fund. An additional $5,000 was received from the Sugar Research Foundation, Inc., for use in administration of the sugar research awards.

The war slowed up the development of the program of the fund, calling its executive secretary and many of its directors into emergency activities and directing to other purposes money which might have come to the National Science Fund. Expenses have been held to a minimum by moving the offices of the National Science Fund at the end of April 1944, from New York City to the National Academy of Sciences in Washington.

Major additions to the fund's program during the current fiscal year were:

1. *The sugar research awards.*—Acceptance of the administration of the sugar research awards was formally announced at a dinner given by the directors of the Sugar Research Foundation, Inc., in Boston on March 2, 1945. The five awards amount to $45,000; on or about March 1, 1946, and each of the three succeeding years, an intermediate prize of $5,000 will be given, and on March 1, 1950, a grand prize of $25,000 will be awarded. The awards will be given in recognition of the development of demonstrated original knowledge about or practical uses for sugar in the prosecution of the war, in medicine, agriculture, the arts, the industries, or in other fields of human endeavor as judged by their importance in terms of the advancement of knowledge and of the public benefit.

Recipients of the sugar research prizes will be recommended by a special committee consisting of Dr. A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard University; Dr. Charles F. Kettering, vice president of General Motors Corp., president of American Association for the Advancement of Science; Dr. Carl S. Marvel, professor of organic chemistry, University of Illinois, president of American Chemical Society; Dr. Edmund W. Sinnott, Sterling professor of botany, Yale University; Dr. William C. Stadie, John Herr Musser professor of research medicine, University of Pennsylvania; and Dr. Vincent du Vigneaud, professor of biochemistry, Cornell University Medical College.

2. *Grants-in-aid.*—The Council of the Academy has made available a fund of $10,000 for grants-in-aid of research. On June 30, 1945, no grants had actually been made.

The following funds are also being administered by the National Science Fund at the present time:

The Charles L. Mayer nature-of-light awards.—There are two prizes of $2,000 each to be awarded for contributions submitted before January 1, 1946. The first prize of $2,000 will be awarded for an outstanding contribution to our basic understanding of the nature of light and other electromagnetic phenomena which provides in terms intelligible to the community of scientists at large a unified understanding of the two aspects of these phenomena which are at present jointly described by wave and by corpuscular theories. This award is intended to encourage for the benefit of the nonspecialist the interpretation of facts already known to the specialist.

The second price of $2,000 will be awarded for the outstanding comprehensive contribution to a logical, consistent theory of the interaction of charged particles with an electromagnetic field, including the interaction of particles moving with high relative speeds. It is hoped that this award will stimulate attack on one of the most fundamental unsolved problems in physics.

Members of the advisory committee on these awards include Dr. E. U. Condon, formerly associate director of the research laboratories, Westinghouse Electric Corp., Director, National Bureau of Standards, United States Department of Commerce; Dr. Karl K. Darrow, technical staff member, Bell Telephone Laboratories; Dr. Robert A. Millikan, chairman of the executive council, California Institute of Technology; Dr. I. I. Rabi, professor of physics, Columbia University.

Because of the preoccupation of the physicists of this and other countries with problems directly relating to the war, relatively few entries have been received for consideration by the advisory committee. However, within recent weeks there has been a noticeable increase in the number of inquiries relating to the nature-of-light awards.

A taxonomic manual of the penicillia.—The sum of $13,000, granted by the George F. Baker Charity Trust, is being administered for the restudy and amplification of Dr. Charles Thom's Classification of the Penicillia, published in 1930. This work is being carried out by Dr. Kenneth Raper under the general supervision of Dr. Thom at the Department of Agriculture's regional laboratory in Peoria, Ill. This project is carried on under a cooperative agreement between the National Science Fund and the Bureau of Industrial and Agricultural Chemistry of the United States Department of Agriculture. Mrs. Dorothy F. Alexander has been employed as an assistant to help perform the required duties.

HARLOW SHAPLEY,
Chairman, National Science Fund.

REPORT ON THE PROCEEDINGS

It is customary at this time to make a report on the Proceedings of the National Academy of Sciences. With the close of the calendar year 1944 we completed the thirtieth volume of the Proceedings. There were 79 contributions making 411 pages. The average length of the contributions was 5.2 pages. The distribution was as follows:

Mathematics	24	Zoology and anatomy	3
Astronomy	2	Physiology and biochemistry	3
Physics	8	Genetics	26
Engineering	1	Pathology and bacteriology	7
Botany	4	Anthropology and psychology	1

Of the 79 contributions 32 were by members of the Academy and 3 were by National Research fellows.

E. B. WILSON, *Managing Editor.*

Report accepted.

REPORT ON BUILDING AND GROUNDS

This is the first annual report of the present custodian of building and grounds. Following the retirement of the former custodian, the responsibility for the operation and maintenance of the building and grounds, as provided in the constitution of the Academy, was transferred to the business manager.

The scarcity of several items of operating supplies and equipment has made more difficult the normal operation and maintenance activities. In spite of that fact, however, essential repair work and adequate maintenance have been accomplished. Funds have been reserved for several substantial and highly desirable repair and renovation projects which, it is planned, will be carried out when labor and materials are more readily available.

In addition to the usual operations the following more significant projects have been completed or are in process: (1) Two cast-iron steam boilers were removed as they were made unnecessary by connection with the Government steam lines a few years ago; (2) a cinder-block partition was erected in the incinerator room in order to reduce the fire hazard and to permit fuller utilization of adjacent storage space; (3) the ceilings in rooms 2, 4, 5, 7, and 227 were treated with acoustical materials; (4) work on recaulking of joints and waterproofing of the roof above the auditorium is in process; and (5) space and necessary utilities have been provided in the basement foyer for the erection and operation of a food stand for the convenience of the staff and visitors. In the more crowded sections of the grounds some trees were removed which were preventing the normal growth and proper development of other more desirable trees.

G. D. Meid,
Custodian of Building and Grounds.

Report accepted.

ELECTIONS

The elections at the annual meeting resulted as follows:

Vice president: Luther P. Eisenhart, for a term beginning immediately and ending June 30, 1949.

Two members of the Council of the Academy, for terms of 3 years ending June 30, 1948: W. M. Stanley, John T. Tate.

New foreign associates: Sir (William) Lawrence Bragg, the University of Cambridge, England; Harold Jeffreys, St. John's College, Cambridge, England; Paul Karrer, University of Zurich, Switzerland; The Svedberg, University of Uppsala, Sweden; Sir Geoffrey I. Taylor, Trinity College, Cambridge, England.

New members: Alfred Blalock, Edward Lull Cochrane, Henry Eyring, Enrico Fermi, James Lawder Gamble, Henry Gilman, Beno Gutenberg, Harold Hibbert, Mervin J. Kelly, Victor Kuhn LaMer, George William Lewis, Ralph Linton, Clarence Cook Little, Paul Christoph Mangelsdorf, J. Howard Mueller, John R. Paul, John Bernard Reeside, Jr., Francis W. Reichelderfer, William Walden Rubey, Homer William Smith, William Christopher Stadie, Otto Stern, Harald Ulrik Sverdrup, Cornelis B. van Niel, John Charles Walker, Alexander Wetmore, Hassler Whitney, Eugene Paul Wigner, Robert R. Williams, Benjamin H. Willier.

PRESENTATION OF MEDAL

At the annual dinner of the Academy held at the Statler Hotel on Monday evening, April 23, 1945, the fifth John J. Carty Medal and award for the advancement of science, consisting of the Carty Medal and an honorarium of $2,500, was presented to William Frederick Durand, with the citation "in his profession, a versatile and creative engineer; among his colleagues, a wise and friendly counselor; before his students, a kindly and inspiring teacher; to the Nation, an able and devoted servant."

REPORT OF THE NATIONAL RESEARCH COUNCIL

For the year July 1, 1944, to June 30, 1945

(Prepared in the office of the Chairman of the Council with the assistance of the chairmen of divisions of the Council)

The following report is presented to the National Academy of Sciences by the National Research Council upon the activities of the Council during the fiscal year July 1, 1944, to June 30, 1945.

INTRODUCTION

Activities connected with the war effort continue to absorb a large proportion of the interest, time, and energy of the members of the National Research Council. Unfortunately, it will be impossible to report on much of this until after the war when, it is expected, a summary of the contributions of the National Research Council to the war effort may be presented. The following statement concerns itself, therefore, mainly with the general fields of service included in the Council's peacetime program.

Postdoctoral fellowships.—The number of applicants for fellowships is still far below those received in normal years, but the requirements for appointment have been maintained rigidly by both the fellowship boards.

Ten applications in the medical sciences and filtrable viruses were received, and six awards were made, including two reappointments. Of these three withdrew to enter military service before beginning their fellowship work. Three applications were received for Welch fellowships in internal medicine, all of which were declined. During the year 1944–45 there were five active fellows in the medical sciences, two in the general fields of medicine, one in virus research, and two Welch fellows appointed for the 3-year period 1943–46.

Thirteen applications, including one for reappointment and one for a Welch fellowship, were received by the board for consideration in the spring of 1945, two of which were withdrawn before the meeting of the board. Four fellowships were awarded for work in 1945–46, three in general medicine and one in the filtrable viruses.

For fellowships in the natural sciences 18 applications were received and eight fellowships were awarded. Of these three resigned, leaving five active fellowships in the natural sciences working during the year 1944–45.

Thirty-three applications were received by the board for consideration in the spring of 1945, and 16 fellowships were awarded for work during the year 1945–46.

Predoctoral fellowships.—A program of emergency predoctoral fellowships has been recently established through a grant of $335,000 from the Rockefeller Foundation available during the period from January 1, 1945, to June 30, 1948. These fellowships are designed to assist young men and women whose graduate study has been prevented or interrupted by the war to complete their work for the doctor's degree. It is hoped that this program will do much to accelerate the recovery of the scientific competence of the country, which has been seriously threatened by the loss of almost two graduate school generations of scientifically trained men and women.

Conference grants.—The National Research Council has continued to sponsor conferences, through appropriations made by the Rockefeller Foundation, called for the consideration of special problems, or meetings of committees of the Council to promote research and to meet other special needs. During the year a total of $14,163.13 was spent for these meetings, as follows:

GENERAL

Committee on history of the National Research Council, Washington, D. C., May 31, 1945.

Committee on applied mathematical statistics.

Conference on problems of restoring international scientific and scholarly relations, Washington, D. C., December 13, 1944.

Conference on predoctoral fellowships, Washington, D. C., January 6, 1945.

Committee on insect control, Washington, D. C., April 16, 1945.

Conference on neurobiology, Washington, D. C., June 29, 1945.

PHYSICAL SCIENCES

Conference on postwar physics, Philadelphia, Pa., July 14, 1944.

GEOLOGY AND GEOGRAPHY

Arctic Institute of North America, Montreal, Canada, December 18, 1944, January 19 and May 29, 1945, and Ottawa, Canada, April 6, 1945.

Committee on deformation of the Ross Shelf ice, Washington, D. C., November 16, 1944.

Committee on experimental deformation of rocks, Washington, D. C., May 31, 1945.

Committee on geological personnel, Washington, D. C., December 11, 1944.

Committee on marine ecology as related to paleontology, Washington, D. C., June 6, 1945.

United States Committee for the study of Paricutin Volcano, Washington, D. C., September 8 and November 15, 1944, and January 17 and June 1, 1945.

Committee on training and standards in the geographic profession, Hershey, Pa., October 6–8, 1944.

MEDICAL SCIENCES

Committee on atypical growth, Washington, D. C., October 7, 1944, February 3 and April 17, 1945.

Committee on growth, June 13, 1945.

BIOLOGY AND AGRICULTURE

Agricultural board, September 1, 1944, Minneapolis, Minn., Washington, D. C., January 9 and May 8, 1945.

Committee on animal nutrition, Chicago, Ill., October 19, 1944, and January 10, 1945.

Committee on plant and animal stocks, New York City, March 30, 1945.

Committee on training of research workers in agriculture, Washington, D. C., June 13, 1945.

Committee on veterinary services for farm animals, Chicago, Ill., April 5, 1945.

ANTHROPOLOGY AND PSYCHOLOGY

Emergency committee in psychology, New York City, July 1 and December 8–9, 1944.

Committee on child development, New York City, February 25–26, 1945.

Subcommittee on survey and planning, Vineland, N. J., December 1–3, 1944.

Committee on African anthropology, Washington, D. C., March 16, 1945.

Committee on war service of anthropologists, Washington, D. C., February 17, 1945.

Committee on basic needs in American archaeology, Washington, D. C., January 22, 1945.

Committee on international cooperation in anthropology, Washington, D. C. June 2, 1945.

Committee on international cooperation in psychology, travel of the chairman.

Travel for consultant to the division.

Representative on special occasion.—In response to an invitation the National Research Council was represented at the inauguration of Dr. Homer L. Dodge as president of Norwich College by Dr. W. H. Kenerson, executive secretary of the National Academy of Sciences and the Research Council.

Office of Scientific Personnel.—The Office of Scientific Personnel, set up in 1941 to assist Federal war agencies in problems relating to scientific personnel has continued to operate during the year with modification in the direction of its activities. Numerous published bulletins have aroused marked general interest in the problem of maintaining a high level of scientific competence in the country, and have been influential in releasing scientific students from military duty in order that they may continue their university training.

The Office has maintained close contact with the Army training activities and has assisted in the procurement of teachers for the American Army universities abroad, and assisted in the organization of the Technical Detachment in the War Department during the summer of 1944. Cooperation with the Navy Department has also been maintained, notably in the utilization of physics majors trained under the V–12 program.

The Office has advised with officials of the Veterans' Administration in the matter of informing persons, eligible to benefits under the GI bill of rights, of vocational opportunities offered by the scientific and other technical professions. In all of its activities the Office has been alert to the need for stimulating the training of scientific personnel, and in the return of scientific personnel to civilian occupations when demobilization occurs.

During the past year financial support for the Office has been contributed by the Geological Society of America, the American Mathematical Society, the Mathematical Association of America, and the American Institute of Physics.

Committee on insect control.—Work of the National Academy of Sciences and the Research Council on insect and rodent control is a direct outgrowth of a similar committee established in September 1944, by the Office of Scientific Research and Development, designed to correlate activities in the problems then under way in the National Defense Research Committee, the Office of Field Service, and the Committee on Medical Research. It was early recognized that in times of peace, as well as in war, problems of insect and rodent control are pressing and that it was necessary to envisage a more permanent organization than could be established by the Office of Scientific Research and Development, which was set up to serve only in the emergency. In the early winter of 1945, therefore, at the request of OSRD, the Secretaries of War, Navy, and Interior, and the Director of the Federal Security Agency, the Academy and Research Council appointed a committee on insect control to take over the functions of the earlier committee of OSRD.

Visit of Indian scientists.—In the fall and winter of 1944 the Council assisted the Department of State and the Indian Agency General in arranging a tour for a group of distinguished scientists and technologists from India who were guests in the United States of the Department of State. Seven scientists were included in the party, representing the fields of physics, astrophysics, chemistry, medicine and physiology, and textile technology. The itinerary, arranged by the Chairman of the Council with the assistance of the chairman of the division of engineering and industrial research, included visits to most of the leading research centers of the country.

Award of the American Pharmaceutical Manufacturers Association.—The National Research Council received on December 11, 1944, the 1944 Scientific Award of the American Pharmaceutical Manufacturers Association "in recognition of its fundamental contributions to public health in the field of the medical sciences; and also in recognition of its essential services to our country in World Wars I and II." The presentation address was made by Dr. Alan Gregg of the Rockefeller Foundation, at an impressive ceremony held in New York City and the acceptance address by the Chairman of the Council.

Bibliography of American Scientific and Technical Books.—The Bibliography of American Scientific and Technical Books, the compilation of which was begun in the spring of 1944, is nearing completion and it is hoped that it will be ready for distribution early next year. The Bibliography is intended primarily for distribution to countries of Central and South America and the undertaking was supported through generous grants from a group of American publishers and the Office of the Coordinator of Inter-American Affairs.

Arctic Institute of North America.—Investigators interested in the far north have long felt the need for an Arctic Institute for the scientific study of the Arctic regions in all of its aspects. The close collaboration between Canadian and American military and civilian agencies during the war brought this need to sharp focus, and as a result a representative group of 20 Canadians and Americans met in New York on May 13, 1944, to discuss ways and means of establishing such an institute. With the aid of small contributions from the National Research Councils of Canada and the United States, a second meeting was held in Montreal September 8, 1944, at which the Arctic Institute of North America was formally organized. The National Research Council was represented at this organizational meeting by R. F. Flint of Yale University and L. M. Gould of Carleton College, both of whom were elected members of the first board of governors of the institute, which has its headquarters at McGill University. Already contributions toward the work of the institute amount to $56,000, and a committee headed by Dr. Flint is preparing an initial program of research.

Geophysical effects of detonation.—In the spring of 1945 the National Research Council received information that the Joint Army-Navy Ammunition Board was planning the detonation of a large amount of high explosives to take place some time during the following summer in an unpopulated area of Idaho, with the suggestion that seismologists and meteorologists might be interested in observing the geophysical effects of an explosion of the magnitude proposed. After consultation with a number of leading investigators in the field, a special committee was appointed under the chairmanship of Father James B. Macelwane, S. J., director of the Institute of Geophysical Technology, St. Louis University. Arrangements have been made for the loan and transportation of a large amount of apparatus, and observations will be made at a number of points at known distances from the center of the explosions, with a view to the preparation of a report for publication.

American Geophysical Union.—The twenty-sixth annual meeting of the American Geophysical Union was held in the hall of government of George Washington University, May 31 and June 1, 1945, with an attendance of 485 members and guests. The program included 90 scientific papers and progress reports. Resolutions relating to the following subjects were adopted: (1) Cooperation between nations in the intercontinental connection of geodetic map-control systems; (2) mapping by the United States Coast and Geodetic Survey and the United States Geological Survey; (3) suggested Federal map information and distribution office; (4) a postwar Interdepartmental Map Board; (5) time-signal services; (6) preparation of accurate topographic maps; (7) improved meteorological bibliographic service. As of June 1, 1945, the total membership of the union was 2,445, an increase of 355 over the number reported last year.

The seventh annual award of the William Bowie Medal for distinguished service in geophysics and outstanding contribution to the advancement of cooperative research in this field, was awarded for 1945 to Dr. Jakob A. B. Bjerknes, head of the department of meteorology of the University of California at Los Angeles.

The development of the science of geophysics has been rapid, especially during the past 10 years, and the executive committee of the union has long felt the need of some provision to meet the growing need for a medium of publication. With the aid of a grant of $20,000 from the Rockefeller Foundation and voluntary subscriptions totaling $10,000 by individual members the Transactions of the Union, beginning with the August 1945 issue, will be published at regular bimonthly intervals. Dr. Waldo E. Smith, formerly of the United States Department of Agriculture, has been appointed full-time executive secretary of the union and serves also as secretary of the editorial committee of the Transactions.

JOINT ACTIVITIES

Conference board of Associated Research Councils.—The conference board of Associated Research Councils, representing the American Council of Learned Societies, the Social Science Research Council, and the National Research Council, has held three meetings during the year under review and has considered a number of proposals, many of which extend outside the fields of interest of the National Research Council.

At a meeting of the board held on May 9 a proposal was considered for the establishment of a joint committee of the Social Science Research Council and the National Research Council for the investigation of methodological problems in the measurement of public opinion, social attitudes, and consumer wants. The area is one in which the demand for the practical application of scientific techniques is far in advance of both technical developments and the supply of trained personnel. Participation in this study has been approved by the organizations concerned and the committee will be set up shortly.

Ethnogeographic Board.—During the past year the Ethnogeographic Board has continued three principal activities: A file on the mandated islands, which has proved to be of great value and has been consulted frequently by members of the armed forces and other agencies interested in the Pacific area; the preparation of spot information requested by Government agencies; and the preparation of a final report on area language programs in American universities. The world file of area and language specialists, an extensive file of persons in the United States having varying degrees of familiarity with one or more foreign area languages, now contains the names of more than 5,000 individuals with complete information regarding their foreign experience and special qualifications. It is generally considered to be one of the most complete and useful personnel files in Washington and has been used extensively by the Army, Navy, and other Government agencies.

While the foreign area and language programs of the Army specialized training program and the civil affairs training school were in full swing, the Ethnogeographic Board sent representatives to study the effects of this new orientation in university training to 25 representative universities and colleges throughout the country. The purpose of this project was to study a vast and unique program of foreign area training in action. It is believed that this was the only comprehensive nongovernmental study of the foreign area programs attempted. The work was carried on under the direction of Dr. William N. Fenton of the Bureau of American Ethnology who has been working actively with the board since its beginning. The reports on Cornell University, the University of California, the University of Chicago, Harvard University, Grinnell College, and the Carnegie Institute of Technology have been completed and published in mimeographed form.

A history of the activities of the board has been prepared by Dr. Wendell C. Bennett of Yale University and will be mimeographed or printed for distribution.

Pacific science appraisal.—In the spring of 1944 the chairman of the committee on Pacific investigations, Dr. Herbert E. Gregory, suggested that the National Research Council give consideration to the preparation of an appraisal of present knowledge of the Pacific area. Accordingly, a conference was held attended by members of the Ethnogeographic Board, the committee on Pacific investigations and representatives of the American Council of Learned Societies, with the result that in August a committee was appointed, consisting of Dr. John W. Coulter, as chairman, Dr. Wilmot H. Bradley, Dr. Austin H. Clark, and Mr. Mortimer Graves, to direct such a survey. With the occupation of Micronesia and other Pacific territories after the war, the possibilities for research in this area by American scientists will be greater than at any period in the past, and a compendium of the knowledge of the Pacific will be invaluable to workers entering the field.

Manuscripts are under preparation on An Introduction to Polynesian Anthropology by Peter H. Buck; Functional Psychological Studies in Polynesia by Edwin G. Burrows; Acculturation in Polynesia by Felix M. Keesing; and Education in Polynesia by Marie Keesing.

The paper by Dr. Buck will be published as a bulletin of the Bishop Museum, Honolulu, and plans are under way for the publication of later manuscripts in the series. The draft of a report on the Geology of Polynesia is almost complete, and preparation of reports on the Biological Sciences and the Humanities will be undertaken as soon as plans can be completed.

LIBRARY

During the past year, the library has added 68 volumes to its reference collection, and has subscribed to or received by gift 130 periodicals. There have been 400 books borrowed from other libraries in Washington for use of the Council personnel.

The library committee of the Academy was of the opinion that, with the extensive resources of Washington libraries, the library in the Academy-Council should be maintained mainly for reference purposes, utilizing the holdings of the Library of Congress and special Government departments when books on special subjects are required. With the privilege of borrowing books which is extended to the Academy-Council, this policy will not handicap the members of the organization and will allow the Council library to use its limited space and its funds for general and specialized reference books in the field of science.

With the Academy no longer storing the publications which are sent to it from other scientific bodies, the library of the Council has handled these volumes, with the approval of the Academy, in the following manner: A few of the more important journals are kept on file, and, after circulating those of interest to the divisions and committees, the remainder have been sent to the Library of Congress and to the Pan American Union either to complete their sets or to be distributed by them to other libraries in this country or in devastated areas.

Special projects.—Card indexes of the Scientific and Biographical Memoirs of the National Academy of Sciences were made for the Publications Office, covering both subject and author.

It was decided in May 1945 that a new edition of the directory Industrial Research Laboratories in the United States should be issued. The seventh edition appeared in 1940 and is out of print. An additional mailing list of laboratories not included in the seventh edition was compiled, and approximately 700 new companies were listed to be approached. The preliminary work for the 8th edition of the directory was not completed until the latter part of June. The new edition will not be available before the spring of 1946.

The Annual Report for 1942–43 was mailed out through the library to 2,790 persons and institutions in September, and the Organization Pamphlet, 1944–45, to 2,350 persons and institutions in March.

Editorial assistance.—Bibliographic assistance was given to divisions issuing publications, and the library handled the placing of Research Council publications with the printer for the bulletins and the reprints and circulars appearing during the year.

PUBLICATIONS

The following publications of the Council or sponsored by its divisions and committees were issued during this period:

BULLETINS

No. 110. Enrichment of flour and bread: a history of the movement. Prepared by Russell M. Wilder and Robert R. Williams, with the aid of the committee on cereals of the food and nutrition board. November 1944. 130 pages. Free.

No. 111. Manual for the study of food habits. Report of the committee on food habits. Carl E. Guthe, chairman: Margaret Mead, executive secretary. January 1945. 142 pages. Free.

REPRINT AND CIRCULAR SERIES

No. 121. Rehabilitation: the man and the job. Report of the subcommittee on rehabilitation of the committee on fatigue in industry. Elton Mayo, chairman; Clarence D. Selby, J. G. Townsend: George F. F. Lombard, secretary. March 1945. 74 pages. $0.25.

PUBLICATIONS OF THE HIGHWAY RESEARCH BOARD

Highway Research Abstracts (10 monthly issues of 10 pages each during the year; mimeographed).

Proceedings of the Highway Research Board, Twenty-third Annual Meeting, Chicago, Ill., November 27-30, 1943. 606 pages.

Wartime Road Problem Series. Nos. 9 and 10, October 1944; April 1945.

PUBLICATIONS OF THE AMERICAN GEOPHYSICAL UNION

Transactions of the American Geophysical Union. Part I: Reports and papers; joint regional meeting; section of hydrology; western snow-conference; American Society of Agricultural Engineers, Berkeley, Calif., February 17-18, 1944. September 1944. Pages 1-185. Part II: Twenty-fifth annual meeting, June 1, 2, and 3, 1944, Washington, D. C. Reports and papers; general assembly, sections of geodesy, seismology, and eastern section of Seismological Society of America, and minutes of meetings. November 1944. Pages 190-389. Part III: Reports and papers, section of meteorology. January 1945. Pages 393-527. Part IV: Reports and papers, sections of terrestrial magnetism and electricity, oceanography, volcanology, and tectonophysics. March 1945. Pages 531-670. Part V: Reports, section of hydrology. April 1945. Pages 672-829. Part VI: Papers, section of hydrology. May 1945. Pages 832-1065.

MISCELLANEOUS PUBLICATIONS

Organization and Members, 1944-45. December 1944. 88 pages.

National Research Fellowships, 1919-44. 142 pages.

The value of individual hearing aids for hard-of-hearing children. Report of the subcommittee of the committee on problems of deafness, under the direction of Rudolf Pintner and Arthur I. Gates. 1944. 40 pages.

Recommended nutrient allowances for domestic animals. Reports of the committee on animal nutrition. No. 1. Recommended nutrient allowances for poultry. 18 pages. June 1944. No. 2. Recommended nutrient allowances for swine. August 1944. 11 pages.

PERIODICALS

Mathematical Tables and Aids to Computation. Quarterly. Edited on behalf of the committee on mathematical tables and aids to computation, division of physical sciences. Subscription price, $3. Volume 1, Nos. 7-10, July 1944 to April 1945.

SUMMARY OF FINANCIAL OPERATIONS

Consistent with the practice in recent years, the expenditures of the National Research Council in the fiscal year ended June 30, 1945, for current operations, are presented below, in comparison with the previous year, in a manner to indicate the general purposes for which funds were expended and the magnitude of operations in the various categories. The amounts shown are exclusive of purchases of securities, transfers of funds within the Council's accounts, repayments of advances from National Academy of Sciences accounts, and refunds which were in the nature of expenditure reductions.

The total current expenditures of the Research Council during the year under review increased by $108,558.55, or 7.6 percent, over the previous year. This gain was accounted for entirely by larger expenditures for Government-financed projects as expenditures in the other categories actually were less than in 1943–44.

Classification of expenditures by purposes

Purpose	1943–44		1944–45	
	Amount	Percent	Amount	Percent
Administration and general	$136,867.21	9.6	$118,071.94	7.7
Specific projects:				
Government financed	995,589.02	69.7	1,119,688.55	72.9
Privately financed	226,707.35	15.9	257,300.15	16.7
Fellowships	45,878.22	3.2	38,156.65	2.5
Agency funds	22,695.85	1.6	3,078.91	.2
Total	1,427,737.65	100.0	1,536,296.20	100.0

Administration and general.—Expenditures for administration and the general activities of the Research Council in 1944–45 were $118,071.94, or 7.7 percent of the grand total expenditures for all current purposes. Funds for the support of the administrative and general functions were provided from (1) a portion of the investment income on the Carnegie Endowment Fund, and (2) Government funds in reimbursement for administrative and overhead costs incurred in connection with carrying out research projects for governmental agencies. Thus, during the year under review, no appropriations from private philanthropy were drawn upon for the support of the Research Council's administrative budget.

Government-financed projects.—During 1944–45 the Research Council operated as the National Academy's agency in the performance of work for Government under 17 formal agreements with 10 departments and agencies. Expenditures for this purpose amounted to 72.9 percent of the grand total for all purposes. The increase over the previous year in the magnitude of these operations in response to Government requests was due entirely to the enlargement of the function of the Academy-Research Council in the administration of research funds by subcontracts with academic institutions and industrial research agencies. The experience gained in these subcontracting operations, in which a substantial number of research and development projects were financed and administered under Government prime contracts, was valuable in that it demonstrated the usefulness of another role that the Council can perform in relation to the research programs of Government agencies and the conditions under which that role can be performed to the best advantage of those agencies.

Privately financed projects.—Expenditures on projects financed by private philanthropy during the year under review were largely in connection with the continuation of previously initiated projects, some of which have a long record of satisfactory operations. During 1944–45 the expenditures in this category were 16.7 percent of the total for all purposes. The economy with which the Research Council is able to administer grant-in-aid appropriations was demonstrated in the programs under the auspices of the committee for research in problems of sex and the committee on research in endocrinology. In both programs more than 95 percent of the donor's funds were expended by the investigators' institutions as direct costs of the research.

Fellowships.—Expenditures for fellowships during 1944–45 were as follows:

In the medical sciences, including those relating to the filtrable viruses and orthopedic surgery	$22, 364. 72
In the natural sciences	15, 791. 93
Total	38, 156. 65

The above total indicates the lowest level of activity in this category in many years and reflects the continued scarcity of available candidates of appropriate caliber for fellowship work.

Agency funds.—During the fiscal year ended June 30, 1945, the Research Council disbursed funds in the amount of $3,078.91 as fiscal agent for the National Bureau of Standards in connection with a portion of its activities.

The annual report of the treasurer of the Academy and Research Council, which begins on page 55, contains detailed financial information relative to the individual projects and activities carried out under the auspices of the National Research Council.

OFFICERS OF THE NATIONAL RESEARCH COUNCIL, 1945–46

The officers, members, and committees of the Research Council for the current year, 1944–45 are given in an appendix to this report (p. 131).

The officers of the Research Council for the ensuing year, July 1, 1945, to June 30, 1946, are as follows:

GENERAL OFFICERS

Chairman: Ross G. Harrison, Sterling professor of biology, emeritus, Yale University, New Haven, Conn.

Treasurer: Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the department of aeronautical engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary: George B. Darling, National Research Council, Washington, D. C.

Business manager: George D. Meid, National Research Council.

Assistant business managers: C. L. Wade, B. L. Kropp, National Research Council.

OFFICERS OF DIVISIONS

Foreign relations: Chairman, Detlev W. Bronk, Johnson professor of biophysics and director of the Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.; vice chairman, Harlow Shapley, professor of astronomy and director of the Harvard College Observatory, Harvard University, Cambridge, Mass.

Physical sciences: Chairman, Luther P. Eisenhart, professor of mathematics, emeritus, Princeton University, Princeton, N. J.; vice chairman, Henry A. Barton, director, American Institute of Physics, 57 East Fifty-fifth Street, New York, N. Y.

Engineering and industrial research: Chairman, Frederick M. Feiker, professor of engineering administration and dean of the School of Engineering, George Washington University, Washington, D. C.; vice chairman, Hugh L. Dryden, chief, Mechanics and Sound Division, National Bureau of Standards, Washington, D. C.

Chemistry and chemical technology: Chairman, W. Mansfield Clark, professor of physiological chemistry, School of Medicine, Johns Hopkins University, Baltimore, Md.; vice chairman, Harris M. Chadwell, head of the department of chemistry and chemical engineering, Tufts College, Medford, Mass.

Geology and geography: Chairman, William W. Rubey, staff geologist, United States Geological Survey, Washington, D. C.; vice chairman, Lester E. Klimm, associate professor of geography, University of Pennsylvania, Philadelphia, Pa.

Medical sciences: Chairman, Lewis H. Weed, professor of anatomy and director of the School of Medicine, Johns Hopkins University, Baltimore, Md.; vice chairman, George B. Darling, National Research Council, Washington, D. C.

Biology and agriculture: Chairman, Robert F. Griggs, executive officer, department of botany, George Washington University, Washington, D. C.; vice chairman, Remington Kellogg, curator, Division of Mammals, Smithsonian Institution, Washington, D. C.

Anthropology and psychology: Chairman, Walter R. Miles, professor of psychology, School of Medicine, Yale University, New Haven, Conn.; vice chairman, F. H. H. Roberts, Jr., archaeologist, Bureau of American Ethnology, Smithsonian Institution, Washington, D. C.

REPORTS OF DIVISIONS

DIVISION OF FOREIGN RELATIONS

(W. B. Cannon, chairman; Harlow Shapley, vice chairman)

The chairman of the division of foreign relations spent several months in the winter and spring of 1944–45 in Mexico City assisting in the establishment of the National Institute of Cardiology of Mexico. During his stay in Mexico Dr. Cannon became seriously ill, and since his return last April, although unable to carry on his normal activities, he has expended a great deal of effort in the preparation of a report upon International Relations in Science, in cooperation with Dr. R. M. Field, of Princeton University.

The Council has assisted the Department of State and other interested groups in preparing for a resumption of international cooperation in science and culture as soon as possible after the cessation of hostilities.

On invitation from the Academy of Science of the Union of Soviet Socialist Republics, the National Research Council and the National Academy were represented at the two hundred and twentieth anniversary celebration of that academy, which was held in Moscow June 15–28, 1945. Dr. Detlev W. Bronk, director of the Johnson Research Foundation, University of Pennsylvania, represented both the Academy and the Council on this occasion. International cooperation in special undertakings has gone forward in several of the divisions of science and technology. An instance which may be cited is the cooperation between scientists of the United States and Mexico in studies of the eruption of Paricutin Volcano, described under the section of this report relating to the division of geology and geography.

DIVISION OF PHYSICAL SCIENCES

(Luther P. Eisenhart, chairman; Henry A. Barton, vice chairman)

International unions.—Because of difficulties of international communication, there has been little activity during the year in the American sections of international unions with which the division of physical sciences is affiliated. The American section of the International Astronomical Union is making plans for the resumption of international collaboration as soon as world conditions permit. The American section of the International Union of Pure and Applied Physics does not look forward to renewed activity until after the war, and the American section of the International Scientific Radio Union reports that plans are under way to hold the next general assembly in Paris, though it is probable that the meeting cannot be held for some time to come.

Revolving fund for the publication of mathematical books.—A revolving fund for the publication of mathematical books was set up in the division of physical sciences through appropriations by the Research Council in 1920 and 1922, amounting in total to $1,500. During the intervening years five volumes have been published, with subsidies totaling $5,980.91, the return in royalties amounting in all to $5,702.72.

Rotating fund, physics committees.—This fund was set up in 1932 from royalties on sales of publications issued by the division, particularly from the sales of volumes in the Physics of the Earth series. Expenditures from this fund have amounted to about $18,000, while receipts from sales since 1932 have totaled approximately $26,000, leaving a balance now on hand of about $8,000.

Mathematical Tables and Other Aids to Computation.—Nine numbers of the quarterly journal, Mathematical Tables and Other Aids to Computation, established in 1943 by a committee of the division of physical sciences, have now appeared, and a tenth is in press. The first eight of these include the following: (*a*) 109 detailed reviews of mathematical tables in books and periodicals appearing in Argentina, China, Egypt, Germany, Great Britain, Russia, and the United States; (*b*) accounts of 31 unpublished mathematical tables with indications of their location; (*c*) 60 lists of errata in published tables, some of which clearly reveal the total unreliability of the tables in question; (*d*) 13 reviews of publications dealing with mechanical aids to computation; (*e*) 28 miscellaneous notes discussing a great variety of topics in connection with tables and table makers; (*f*) 12 queries and 13 queries-replies; (*g*) 9 introductory articles—bibliographic, summaries of tables in different fields, computational methods, machines for solving algebraic equations, etc.

Especially during the early part of 1943 many inquiries were received concerning tables of Bessel functions. As a result, a greatly enlarged No. 7 was published, wholly devoted to a Guide to Tables of Bessel Functions. The basis for this guide was material from Prof. H. Bateman's Report on Tables of Higher Functions, greatly expanded and worked over for more than a year by Professors Bateman and Archibald.

Twelve numbers are to complete volume 1, of nearly 500 pages with index. There are about 350 paid subscribers to the journal, more than 100 from great Britain and a number from Australia and South Africa, and the number is increasing constantly.

DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH

(W. F. DURAND, chairman; HOWARD A. POILLON, vice chairman)

Highway Research Board.—During the year, this board has maintained a high degree of activity, especially directed to problems arising in the construction and maintenance of highways under forced use of unusual or inferior materials and under conditions resulting from the present war situation.

The monthly publication Highway Research Abstracts has continued. Volume 23 of the Proceedings has been published, comprising a volume of 600 pages, and the material for volume 24 has been sent to the press. A roadside development report, consisting of 147 pages and 20 chapters, together with the ninth bulletin of the Wartime Road Problems series entitled "Treatment of Icy Pavements," and bulletins 10 and 11 on salvaging old high type flexible pavements and on compaction of subgrades and embankments have been prepared and sent to the printer.

A special project in cooperation with the Calcium Chloride Association on the use of calcium chloride in soil stabilization is under way.

Work on two special investigations on structural design of nonrigid pavements, in cooperation with the Public Roads Administration and the Asphalt Institute, and on treatment of subgrade soils for frost prevention in cooperation with the Calcium Chloride Association, is progressing satisfactorily.

The Research Board for National Security has referred to the National Academy of Sciences a special problem relating to the compaction of subgrade earth as a foundation for airplane landing fields for the landing of airplanes of greatly increased weight. This problem has been referred to the Highway Research Board, and the investigation is going forward.

War metallurgy committee.—During the year work of the war metallurgy committee has proceeded in practically undiminished volume. Owing to curtailment of expenditures by the Office of Scientific Research and Development a number of the committee's projects have been placed under the direction of the Office of Production Research and Development, but new programs of investigation undertaken by the committee have balanced these transfers in considerable measure. Up to date some 883 reports have been prepared by the committee and submitted to the supporting agencies. Some of these represent the results of actual research carried on under the direction of the committee, and some are the results of studies and surveys conducted by special panels or subcommittees appointed for the purpose. The following titles will serve to indicate the types of projects and reports of the committee: Fatigue tests of ship welds; investigation of metallurgical quality of steels used for hull construction; weldability of heat-resisting alloys; heat-resisting metals for gas turbine parts; weldability of steel for hull construction; examination of enemy matériel; weldability of commercial armor plate; correlation of information available on the fabrication of aluminum alloys; spot-welding of heavier gages of aluminum alloy sheet; production and properties of magnesium press and hammer forgings; improvement in gun steel ingot practice; metal and ceramic materials for jet-propulsion devices; and hot forming of aluminum alloy parts.

Quartermaster problems.—The work of the committee on quartermaster problems throughout the year has also been of great volume and of high importance. The projects have dealt with the improvement of the widest variety of articles comprising the quartermaster issues, or with the discovery or development of new articles to meet special conditions. During the year the prime contract covering this work has been transferred from the Office of Scientific Research and Development to the office of the Quartermaster General, and the contract has been extended to August 31, 1945.

One important series of investigations has been concerned with the improvement of fabrics for war issue. A study in connection with the preshrinkage of woolen fabrics has resulted in an annual saving of several million dollars. A recent project dealing with cotton textiles will probably involve six to eight subprojects, with a total budget approximating $500,000 for the first year. During the fiscal year 1944–45 the War Department spent some $1,200,000,000 on cotton textiles. In view of expenditures of this magnitude, the additional expenditure of $500,000 for studies looking to the improvement of such materials may well result in substantial savings in the future.

Committee on fatigue in industry.—During the year the work of this committee has proceeded effectively, and manuscripts for two monographs have been completed. The first is a report on a study of the rehabilitation of industry under peacetime conditions, with special reference to the readjustment of the returning veteran. The subcommittee in charge of this investigation has conferred widely with industrial leaders, and a monograph, prepared by the secretary of the subcommittee, Dr. George F. F. Lombard, of the Harvard School of Business Administration, has been published.

The subcommittee on nutrition in industry, with the assistance of a full-time field agent, Dr. Maurice E. Shils, has conducted an extensive study of practices followed by industry in supplementary feeding of workers. A large amount of material has been gathered, and a report will be printed and distributed to industrial leaders as a source of information on present practice and methods.

Surplus War Properties Administration.—In response to a request from the Surplus War Properties Administrator, the division has given attention to two problems confronting the Administration: (1) The conversion of the aluminum structure of airplanes into ingot aluminum available for miscellaneous industrial uses, and (2) the adaptation of aeronautic engines for use in industry.

The Battelle Memorial Institute, which has given generous cooperation to the National Research Council in connection with a number of emergency projects, has undertaken to investigate the problem of conversion of aluminum structures and to prepare recommendations for consideration by the division and transmittal to the administration. Present indications are that such aluminum structures, from both the metallurgical and the economic standpoint, can be converted into ingot forms available for either sheets and structural forms or for aluminum castings at reasonable cost.

Arrangements are under negotiation with a large engineering firm in New York City to survey the possibilities of adaptation of aeronautic engines for use in industry. It already appears practicable, as an engineering problem, to adapt an aeronautic engine for a wide variety of stationary uses such as electric generator drive, centrifugal pump drive, power for small industrial shops, woodworking machinery, auxiliary service in electric generator stations, etc. There are certain difficult problems, however, relating to the adaptation of the engine to grades of fuel cheaper than aviation gasoline, though experiments in progress indicate the possibility of the use of such fuels as low-grade commercial gasoline, Diesel oils, distillates and producer gas. More extended investigations into the use of these fuels are being continued.

Committee on prosthetic devices.—During the late fall of 1944 the Surgeon General of the Army requested the National Research Council to institute a study looking toward improvements in the design and function of artificial limbs. Since the problems involved in such a study concern both engineering and medicine, a joint committee of the divisions of engineering and the medical sciences was set up under the chairmanship of Dr. Paul E. Klopsteg, of Northwestern University, supported initially through contract with the Office of Scientific Research and Development. The committee has held a number of meetings, and has consulted with manufacturers and others, and already notable improvements in the mechanism of the knee and elbow joints have been agreed upon. It is obvious that improvements in artificial limbs will be of value to a vastly greater and continuing number of persons injured in accidents in industry and civil life generally than those suffering from war injuries.

DIVISION OF CHEMISTRY AND CHEMICAL TECHNOLOGY

(W. Mansfield Clark, chairman; Harris M. Chadwell, vice chairman)

During the year under review the standing committees of the division of chemistry and chemical technology have continued to operate on a wartime basis.

The chairman of the advisory committee on International Annual Tables of Constants and Numerical Data, Dr. Hugh S. Taylor, reports the completion of preparatory work for the issuance of card file by substances, and that during the difficult years of the war an organization has been maintained, under the editorship of Dr. Nathan Thon, which will make possible the continuance of this important compendium of chemistry and physics.

The committees on fundamental physical constants, on low temperature scales, and on thermal data for chemical industries, through the leadership of Dr. F. G. Brickwedde, have maintained those contacts which will make possible the resumption of full peacetime activities of these three important committees.

The committees on organic chemical nomenclature, biochemical nomenclature, and standardization of symbols and abbreviations have continued to operate, though on a greatly reduced scale. The chairman of the first-named committee has maintained contact with the work of committees on special topics, such as carbohydrates and carotenoids, and with a number of chemists interested in the nomenclature of organic silicon compounds. He reports that he has reason to believe that American chemists, including those in industry, are becoming increasingly interested in correct nomenclature, and that certain large chemical companies are engaged in standardizing their organic nomenclature to accord with nomenclature adopted by the International Union of Chemistry.

The committee on biochemical nomenclature has been concerned during the past year with problems of nomenclature of carotenoids, for which a system of nomenclature has been prepared and submitted for criticism to workers in the field.

The chairman of the committee on standardization of symbols and abbreviation reports further progress in the compilation of the first draft of a list of symbols, and active cooperation with workers in related fields, particularly with subcommittees of the American Standards Association.

The executive committee of the division, realizing that many important developments have taken place during the war in the field of catalysis, has asked the chairman of the committee on catalysis to confer with workers in this field and advise upon the resumption of activity in the postwar period.

The activities of the committee on the chemical utilization of coal have been brought to completion with the publication of its report, Chemistry of Coal Utilization, by John Wiley & Sons, Inc. This report, consisting of two handsome volumes of 1,868 pages, contains chapters contributed by 32 collaborators, edited and indexed under the direction of the chairman of the committee, Dr. H. H. Lowry, of the Carnegie Institute of Technology, who has devoted much time and labor to the project during the past 8 years. Reviews which have appeared in a number of techical journals and reports of sales by the publishers indicate that this comprehensive and critical compilation of scientific work on coal utilization is meeting a long-felt need.

The most extensive work done under the auspices of the division has been in the field of antimalarial drugs. Formed first to supplement the synthetic work of volunteers, who were cooperating with the survey of antimalarial drugs, the panel on the synthesis of antimalarial drugs advised the committee on medical research regarding contracts for synthesis and administered a good deal of the detail connected with special lines of research. When the board for the coordination of malarial studies, through its panel of review, undertook frequent reviews of the assembled data, it was found necessary to step up the synthetic program in systematic pursuit of special developments. The division and the board for coordination of malarial studies were very fortunate that Dr. Carl S. Marvel of the University of Minnesota, agreed to undertake this extensive organizational work, which he has conducted with signal success.

Some excellent advances have been made by four groups working under OSRD contracts with the advice of the panel on the biochemistry of antimalarial drugs.

Dr. Frederick Y. Wiselogle, who is in charge of the survey of antimalarial drugs, and Dr. Kenneth C. Blanchard, who serves as a liaison member of the several panels, as special investigator, are performing a fine service in the survey. Information that guides the panel of review, advisory to the coordination board, is assembled in the survey.

Now that the work of the conference on the synthesis of cortical hormones has been lowered in classification to "open", it may be stated that the members have cooperated well in an extremely difficult program. Some operated under OSRD contracts and others were volunteers from academic institutions and commercial fields. The results have a high academic interest, and Dr. Hans T. Clarke of Columbia University, has taken over the chairmanship of the conference in order to coordinate the publication of work discussed freely about the conference table.

The Navy Department, having on its hands a considerable number of patients infected with tropical diseases, such as filariasis, schistosomiasis, and the like, appealed to the division of medical sciences for research on chemotherapeutic agents. As soon as testing laboratories were established, the division of chemistry initiated the collection of compounds for testing as possible agents. The systematic collection of data on these compounds was then taken over by the chemotherapy center for tropical diseases, organized within the division of medical sciences.

The War Department's Technical Manual TM-8-227, Methods for Laboratory Technicians, required extensive revision, which the division of medical sciences was requested to undertake. The chapters of this manual dealing with chemical methods were assigned to the division of chemistry and chemical technology. Under the chairmanship of Dr. D. D. Van Slyke, of the Rockefeller Institute for Medical Research, these chapters were entirely rewritten. Recognizing the need for certain improved methods, and particularly for new methods applicable to field conditions, Dr. Van Slyke used the opportunity to design several new analytical procedures. Of particular interest is the copper-sulfate method for determining the density of plasma and whole blood. With this the physician in the field can determine quickly several features of the blood as a basis for judging treatments in shock, hemmorhage, etc. This committee also served the Army in advising upon improvements in methods for the determination of atebrin in blood plasma.

During the first years of the war the chairman of the division assumed the chairmanship of certain special committees to avoid imposing on already overburdened chemists and to maintain adjustments within fields of classified information. Others now have generously taken over several of the burdens. The chairman is still called upon to serve the Council in many ways that cannot now be reported.

DIVISION OF GEOLOGY AND GEOGRAPHY

(WILLIAM W. RUBEY, chairman; OTTO E. GUTHE, vice chairman)

Geologic section.—After many delays caused by the war, the tectonic map of the United States was published by the American Association of Petroleum Geologists in November 1944. The committee on tectonics began planning this map in 1922 and active compilation of it in 1934. Hundreds of individuals contributed published and unpublished data: members of petroleum and mining companies, university faculties, private research organizations, various State agencies, and the United States Geological Survey. The completed map is a monument to the industry and patience of a group of loyal workers, and it is one of which the division of geology and geography may well be proud. Requests have already come from users of the map that the committee be continued in order to undertake a revision that will incorporate new data that have accumulated. The glacial map of North America, a project of somewhat similar scope, was prepared by a division committee of that name and is now in press for publication by the Geological Society of America.

Of the 13 correlation charts of sedimentary formations being prepared by the committee on stratigraphy, 8 have now been published in the Bulletin of the Geological Society of America since the outbreak of the war, 2 others will be published soon, and 2 more are well advanced toward completion. In the face of the difficulties of carrying on pure research in wartime, this committee has established a remarkable record of productive scientific work.

The committee on common problems of genetics, paleontology, and systematics has continued with plans for a symposium and the preparation of a book after the war. Within the year it distributed the third and fourth mimeographed reports of discussions among its members. Several members have also published recent papers or books on problems within the scope of the committee. The fourth annual report of the committee on marine ecology as related to paleontology, issued in mimeographed form during the year, includes a summary of current activities and bibliography for the year and five brief papers in the field of paleo-ecology. At a meeting of this committee on June 6, plans were laid for preparation of a treatise on the application of marine ecology to the interpretation of conditions in the geologic past.

The committee on geological personnel has been relatively inactive during the year because of the pressure of other work on its members. A meeting of the committee was held in Washington December 11, and committee members have cooperated with the National Roster of Scientific and Specialized Personnel of the War Manpower Commission and with the Office of Scientific Personnel of the NRC in preparation of data for various purposes. The chairman of this committee attended a meeting in New York, March 29, to discuss personnel needs of the newly formed research board for national security. The committee on advising prospective geology students has likewise collaborated with representatives of the National Roster, particularly in preparation of a vocational bulletin for returning servicemen on the educational requirements, nature of work, and professional opportunities in the field of geology.

The revised committee on geology of ceramic raw materials circulated a questionnaire among technologists in the ceramic industries and, on the basis of replies, has projected a plan for a treatise on the occurrence of various types of ceramic raw materials. During the year the committee on deformation of the Ross Shelf ice was able to resume work on the preparation of maps from aerial photographs showing the effects of deformation of the floating ice. This deformation strikingly resembles that of the rocks of the earth's crust.

In times as difficult as these for the maintenance of research that is unrelated to the war, it is a pleasure to be able to report the splendid record of the United States committee for the study of Paricutin Volcano, which was appointed by the division in July 1944, with Dr. R. E. Fuller as chairman. The committee was organized, at the suggestion of officers of the section of volcanology of the American Geophysical Union, to assure collection of accurate data while activity continues at the new volcano and before the record of the eruption is lost. It aims to cooperate with Mexican scientists in investigations of the volcano and to encourage and facilitate geological, geophysical, chemical, meteorological, and other scientific studies related to the eruption. Before the United States committee was formally established, assurance was received that a parallel Mexican committee would be formed to cooperate in these investigations. Thanks largely to the energy and enthusiasm of its chairman, the committee has been highly successful in obtaining the assignment of personnel, equipment, and funds from various governmental agencies and private institutions for investigations needed while the volcano is in eruption. The

Geological Society of America has been especially generous in granting funds for a wide variety of investigations and for the construction of shelters and trails needed by scientists working near the volcano. In large part, as a result of the committee's efforts, new aerial photographic, magnetic, and gravimetric surveys, topographic and geologic maps, and geochemical and paleobotanical investigations have been completed; and, at the close of the year, new projects were starting on transportation and erosion by the ash-choked streams and on lightning and storms above the volcano. It is evident that the formation of the committee was timely and that it served to focus attention on the rare opportunity that might have been lost because of the war unless special efforts had been made.

A second new committee was appointed in December 1944 with Dr. Eleanora B. Knopf as chairman. This committee on experimental deformation of rocks will plan and institute a program of experiments on rock deformation under controlled conditions of pressure, temperature, and other variables and with precise information on the petrofabrics of the materials deformed. The investigations of these problems of rock deformation by Griggs and others have been interrupted by the war, and it is the purpose of the committee to assure the continuation of this fundamental work. In the few months that it has been in existence, the committee has made a good start toward formulating lines of attack on some of the problems that must be solved.

Several activities outside the field of the regularly constituted committees of the division pertain particularly to geology. At the request of the War Production Board, and under the auspices of the war metallurgy committee of the National Research Council, the division chairman called a conference on October 7 of mineralogists and technologists to discuss the relation of the "power factor" of mica to its crystal structure and other properties. Several other informal conferences were held, in the course of which a method of attacking the problem was formulated. The project was then assigned by the Office of Production Research and Development to a private research institute for experimental investigation.

In cooperation with the Office of Scientific Personnel of the Research Council and with officers of several national geological societies, the chairman of the division advised officials of the Civil Service Commission regarding a proposed lowering of educational requirements for geologists and other scientists entering the Government service.

The committee on processes of ore deposition was discontinued in 1940 but its report, "Ore deposits as related to structural features," published in 1942 by the Princeton University Press, has been in continuous demand. The royalties from sale of this publication have averaged $400 to $500 annually and have now met all obligations against the project. On the recommendation of Dr. W. H. Newhouse, chairman of the committee that prepared the report, future royalties will be transferred from the National Research Council to the Society of Economic Geologists.

Joint geologic and geographic committees.—Two of the three joint geologic and geographic committees were compelled, by force of circumstances, simply to stand by during the year in order to resume their work after the war. One of these, the committee on cartographic techniques, looks forward to the important task of making available to geologist and geographers throughout the country a report on the many and varied adaptations and improvements that have taken place during the war years in the field of cartography. However, there is practically no opportunity at the present time for men active in this field to contribute to the work of the committee. The third of the three, the committee on map sketching from aerial photographs, made gratifying progress toward its objective of preparing a practical manual on the construction of maps from aerial photographs by simple methods that require little or no special equipment.

Geographic section.—During the year 1944–45, as in the previous year, most of the members of the geographic committees have been actively engaged in work directly related to the war effort or to activities associated with problems arising from the progress of the war.

No new committees were established during the year, and the committee on southern studies was the only one placed in a "stand-by" status awaiting opportunities for the resumption of research studies following the cessation of the war.

The committee on manpower in the geographic profession has also maintained its advisory function toward the War Manpower Commission and has supplied the National Roster of the Commission with a description of the profession of geography which was printed and distributed by the Bureau of Placement.

During the war period geographers have gained wide experience in conducting studies which have involved consideration of problems associated with the progress of the war and with economic developments in all parts of the world. Techniques have been improved to meet the demands of the Government agencies and private concerns that have employed geographers, but at the same time certain weaknesses in basic geographic training have appeared. The committee on training and standards in the geographic profession, which was established last year to study developments in the field of geography and to formulate recommendations on the basis of these studies, met in a 3-day conference in October 1944. A forthcoming report based on discussions at this conference will describe certain deficiencies in training that require correction, increasing opportunities of employment for professionally trained geographers, and recommendations for modifications in geographic training and standards foreseen as necessary to meet future trends.

The chairman of the committee on Asiatic geography was fortunate in having been able to discuss common problems with many geographers and geologists in the countries of Asia during his last visit to that area. Through his efforts the committee has promoted cooperation and exchange of information between Asiatic and American geographers. The committee is continuing its efforts to increase the number of trained men in this field of specialization and to encourage geographical publication on specific parts of Asia.

Except for continued progress in the maintenance and proper indexing of the census materials by the subcommittee on census of professional geographers of the committee on geographic research, the remaining geographic committees of the division have been relatively inactive during the past year, although the chairmen of these committees anticipate acceleration of work as soon as research workers are released from war assignments.

DIVISION OF MEDICAL SCIENCES

(Lewis H. Weed, chairman; George B. Darling, vice chairman)

During the year 1944–45 the division of medical sciences has attempted to meet its responsibilities as in the past. It has made full use of divisional committees and has supported the activities of certain interdivisional committees which have dealt largely with problems of interest to more than one division.

Medical Fellowship Board.—The National Research Fellowships in the Medical Sciences have continued to be awarded by the Medical Fellowship Board. This Board has dealt with the regular fellowships as well as those in virus diseases and in orthopedic surgery. The enlarged fellowship Board, including three members selected from the field of clinical medicine, has handled the problems of the Welch Fellowships and has maintained general supervision over the program of the fellows.

The proposed fellowships in anesthesia, reported last year, have not as yet been initiated. It is anticipated, however, that this enterprise, sponsored by the American Society of Anesthesiologists, will be inaugurated during the academic year 1945–46.

American Registry of Pathology.—During the past year, the activities of the Registry have shown a marked and healthy increase. Interesting material has been received from civilian sources and Army installations. The addition of the Registry of Veterinary Pathology in August 1944, increased the number of registries to thirteen. The loan sets and atlases compiled under the auspices of the Registry continue to be in demand by doctors preparing for Board examinations. The John and Mary Markle Foundation has again supported the collection and distribution to medical schools of materials and lantern slides for the teaching of tropical diseases.

Committee for research in problems of sex.—While the number of cooperating investigators has diminished during the past 2 years, the productivity of the group has been surprisingly high. The committee now looks forward to a period of increased demands on its resources.

At its annual meeting, the committee accepted with utmost regret the resignations of Dr. Walter B. Cannon and Dr. Adolf Meyer. Dr. Willard M. Allen, Dr. Wallace O. Fenn, and Dr. John Romano have been appointed to membership in the group, effective July 1, 1945.

At the request of the Surgeon General of the Army, a conference on the biology of sex was held in April 1945, under the auspices of the committee. Dr. Alfred C. Kinsey, the principal speaker, reported his observations on the sex histories of approximately 8,200 individuals.

Committee on research in endocrinology.—The committee has, during the war years, attempted to preserve certain centers of endocrine research. It is hoped that the studies supported may serve during the postwar period as nuclei for the future development of the field in this country.

The resignation of Dr. Walter B. Cannon as chairman and original member of the committee was reluctantly accepted at the annual meeting. Effective July 1, 1945, Dr. C. N. H. Long was named as chairman, and the following new members were appointed: Dr. E. A. Doisy, Dr. Carl G. Hartman, and Dr. K. W. Thompson.

Advisory committee on drug addiction.—This committee has been relatively inactive during the past year, but has important responsibilities in relation to the national program. Dr. Lyndon F. Small was appointed as an additional member of the committee.

Committee on medical problems of civil aviation.—At the request of the Administrator of Civil Aeronautics, the division organized this committee with Dr. E. Cowles Andrus as chairman, to advise the Civil Aeronautics Administration on medical problems of civil aviation. During the year, the committee held several important meetings and completed a revision of the physical standards for civil aviators. The division will organize a small office for information and distribution of reports, and the members of the committee will carry on active studies in this field.

Committee on growth.—During the summer of 1944, the division organized a committee on atypical growth. This committee held an important meeting, and out of the deliberations of the group grew a program of voluntary coordination of research. During the early fall and winter, the proposal of the American Cancer Society to support research in this wide field became a matter of divisional interest; and in March 1945, Dr. C. C. Little, managing director of the American Cancer Society, requested the division to establish a committee on growth. Inasmuch as the request involved the assumption of new obligations, the division's executive committee voted to discharge the existing committee for study of atypical growth and authorize the appointment of a new committee to meet the altered duties involved in the relationship to the American Cancer Society. This new committee on growth, under the chairmanship of Dr. C. P. Rhoads, will have broad responsibilities in planning and supervising the program of research in the varied fields of cancer investigation and will be the sole scientific adviser in research to the American Cancer Society.

The committee on growth has decided to organize a series of panels, which will hold conferences on various aspects of the cancer problem. Recommendations submitted by the technical groups will be coordinated into a broad program of research by the main committee, and then transmitted to the executive committee of the American Cancer Society for action. This cooperative arrangement between the Research Council and the American Cancer Society promises to set a pattern of function for the National Research Council, as an agency furnishing scientific advice to an organization of national scope, supported by voluntary subscriptions from large numbers of individuals.

Interdivisional committees.—The division of medical sciences has cooperated during the year in the activities of the following joint committees: Committee on prosthetic devices, with the division of engineering and industrial research; the food and nutrition board, with the division of biology and agriculture; and the committee on food habits with the division of anthropology and psychology.

Committees on military medicine.—The division of medical sciences can now report 5 years of continuous activity in the general field of war medicine. Originally appointed to act as consultative groups to the Surgeons General, the advisory responsibilities of the committees have been extended widely through the Federal agencies. The most important function of these committees has developed in relation to medical research where the committees have acted as scientific advisers to the committee on medical research of the Office of Scientific Research and Development. The contractual arrangements of the Academy-Council with the Office of Scientific Research and Development have been detailed in previous annual reports and need not be given here. The relationship between the committees of the division and the committee on medical research has continued to be close and cooperative. All of the main committees in this area of so-called military medicine have continued to function effectively during the year. Some of the committees have been very much more active than others, largely because of field of endeavor; but all of the main groups have met repeatedly and have dealt with important problems.

In spite of the difficulty of prediction of future demands, definite termination of activity of some of the committees is indicated. The committee on drugs and medical supplies has continued to stand by, though its problems have largely been solved. The subcommittee on medical food requirements has held no meetings during the year, but the services of its technical aide have been required by the Office of Price Administration in connection with appeals from local OPA rulings as to foods needed by ill individuals and invalids in excess of those provided by the rationing system.

Board for the coordination of malarial studies.—The problem of malaria has only in part been met by preventive and suppressive measures. There is still need for an antimalarial drug which is superior to quinine and atabrine, one which will prevent the relapses in vivax infections. In consequence, the board has increased the magnitude of the work done under the four panels. Through contracts between the various universities and commercial organizations and the Office of Scientific Research and Development, recommended by the board, work on synthesis, pharmacology, and clinical testing of new drugs is going ahead very rapidly. In this undertaking the division has served as an administrative and financial agent for OSRD. The board, however, maintains its independence, as it represents a coordinating body with membership from the Army, Navy, and Public Health Service which have made contributions of great importance to the enterprise.

Cooperative effort in the field of tropical diseases.—Under the general jurisdiction of the subcommittee on tropical diseases, an office for study of drugs which are important in certain tropical diseases has been established as a joint undertaking with the division of chemistry. On recommendation to the committee on medical research, contracts between the Office of Scientific Research and Development and several universities have been drawn, leading to the financing of the testing of these drugs. Reports of the pharmacological activity of the compounds have been furnished the cooperating agencies.

Office of Medical Information.—A number of authoritative brief articles on current progress in medical fields were prepared by competent authorities and were submitted to the Office of War Information for translation and distribution in large numbers to reoccupied countries in Europe. One very important publication of the Office during the year was an analysis of the literature in the field of primate malaria prepared by Dr. Sophie D. Aberle. This was distributed to scientists working on the problems of malaria and to the Army and Navy Medical Services.

A broad picture of current medical advance is available in the files of the Office. These files will form very valuable source material for any subsequent history of the activities of the division in this war period. This Office should be continued and should take over the functions of the record section of the division of medical sciences, which has dealt largely with materials in military medicine.

Lectures in tropical medicine.—During the last 3 years, the division has sponsored an educational program in the field of tropical medicine. Under an appropriation of $40,000 made in 1942 by the John and Mary R. Markle Foundation, temporary visiting lectureships in tropical medicine were established in various medical schools. This activity has largely subsided during the past year, and only one lecturer, Dr. L. E. Napier, was appointed by the Council under this grant. The unexpended balance in the grant is being held in reserve in order to take care of other similar problems which will undoubtedly develop.

Publication of manuals.—During the year, three additional manuals pertaining to medicine in the war period have been prepared under the auspices of the division. The first was that on Clinical Mycology by Norman F. Conant, Donald Martin, David Smith, Roger Baker, and Jasper Callaway. The second in the series was on Tropical Medicine, by Thomas T. Mackie, George W. Hunter, and C. Brooke Worth. The third, a Manual of Surgical Anatomy, was prepared by Tom Jones and W. C. Shepard. These volumes constitute a distinct contribution to the American publications in medicine during the war period.

The division now looks forward to a large increase in its continuing peacetime work in carrying out the contractual agreement between the Academy-Council and the American Cancer Society. This arrangement should point the way for the larger functioning of the Council in the field of science, for it seems essential that the Nation-wide organizations should receive the best of professional advice. The Council seems to be the logical agency to provide this urgently needed unbiased advice.

DIVISION OF BIOLOGY AND AGRICULTURE

(Robert F. Griggs, chairman; C. F. Korstian, vice chairman)

Agricultural board.—Progress has been made by this board, during the year of its existence, in the fields of feed composition, training of research workers, veterinary services for farm animals, and brucellosis control, and it is planning work in other fields. Meetings were held in September, January, and April.

In view of a provision contained in the Veterans' Preference Act of 1944 substituting experience for educational qualifications for the employment of scientific workers in the Government by the Civil Service Commission, the agricultural board urged the executive board to suggest to the national societies constituting the membership of the Council that they write to the Commission regarding the importance of educational qualifications. Following this action, such a communication was transmitted by the Council to its member societies.

The committee on adult vaccination against brucellosis in cattle published its report in the Journal of the American Veterinary Medical Association. Mimeographed copies of the report were distributed by the division.

The committee on animal health held a meeting in Chicago on August 21 in conjunction with the annual meeting of the American Veterinary Medical Association. Three recommendations passed at this meeting were taken over by the agricultural board for further action.

Reports published by the committee during the year are:

Recommendations for Prevention of Bloat in Cattle and Sheep.
Adult Vaccination Against Brucellosis in Cattle.
Recommendations for Increasing Milk Production Through Proper Milking and Mastitis Control.

A subcommittee is studying mastitis, with special reference to therapeutics.

The subcommittee on bloat arranged a symposium at the December meeting of the American Society of Animal Production. A scientific presentation of the subject was prepared by the subcommittee and published under the title "A Review of Bloat in Ruminants" in the Journal of Animal Science. This is being reprinted as No. 24 in the National Research Council's Reprint and Circular Series.

The committee on feed composition is proceeding with plans to assemble and publish information on the composition of all feeding stuffs of importance, which would implement the application to animal feeding of the recommended nutrient allowances for the different classes of livestock.

The committee on plant and animal stocks.—At its meeting in New York on April 11, the name of this committee was changed from that of the committee on the maintenance of pure genetic strains. The committee is working in cooperation with a committee of the agricultural board on the problems of stock keeping.

The committee on training of research workers in agriculture was appointed in January to formulate a policy with specific recommendations.

The committee on veterinary services for farm animals met in Chicago on May 9. The function of the committee is to prepare recommendations leading to increased efficiency in livestock production by reducing livestock losses.

There is not now any accurate information as to the extent of losses to the farmer from death or sickness of farm animals. The committee is developing a program to supply such knowledge.

There is a serious shortage of veterinarians in this country. The average age of veterinarians in the United States is about 50 years. Only 10 States have veterinary colleges. A subcommittee is studying veterinary education with a view to making recommendations as to the best content of veterinary courses and as to the number of veterinarians needed to meet the requirements of this country.

Committee on animal nutrition.—Five manuscripts on recommended nutrient allowances for farm animals have been prepared by this committee for publication by the National Research Council. Three numbers in the series have been published:

I. Recommended Nutrient Allowances for Poultry.
II. Recommended Nutrient Allowances for Swine.
III. Recommended Nutrient Allowances for Dairy Cattle.

Two numbers are still in press:

IV. Recommended Nutrient Allowances for Beef Cattle.
V. Recommended Nutrient Allowances for Sheep.

Committee on human heredity.—Work is progressing on five outstanding grants. These grants include investigation of Rh and other blood types; congenitally missing teeth; electroencephalographic records of epileptic patients and their relatives; psychogenetic study of twins; and X-ray pictures of the mastoids, sinuses, and sellae turcicae of 100 families. Fourteen papers have been published and, on each study, additional papers are being prepared.

Committee on the use of aircraft in wilderness areas.—In response to a request from the Chief of the United States Forest Service, the division has appointed a committee, under the chairmanship of Dr. Aldo Leopold of the University of Wisconsin, to study the problem of the effect of airplane travel on wilderness areas.

Microbiological board.—A board dealing with problems in the field of microbiology was approved at the annual meeting of the division. In its organization and function, the board would be comparable to the food and nutrition board. A preliminary conference of leaders in the field strongly recommended that such a board be set up. It is hoped that it may be possible soon to finance its operation.

Food and nutrition board.—The activities of the board during this year have reflected the shifting problems confronting the nation and the world with the end of the war. Requests from Government agencies seeking ways to improve nutrition have resulted in reports on the following subjects:

1. The adequacy of prospective 1945 nutrient supplies and suggested measures for strengthening the American civilian dietary, requested by the Office of Marketing Services, War Food Administration. Better distribution of food supplies, increased use of enriched cereal products and of milk products, and education of the public in avoiding loss of nutrients in the preparation of food, were recommended as practical measures for assuring an adequate diet to American civilians.
2. The nutritional adequacy of the proposed revised Federal prison ration. The new ration, reduced in certain particulars from the former level, was judged to be adequate.
3. Both immediate and long-term steps leading to improvement in the Army B ration.
4. The advisability of undertaking three general lines of research in food and nutrition proposed by the research board for national security. These were approved by the board.
5. The effects of semistarvation and of different rates of nutritional rehabilitation, as determined by a year of experimental work. This report was requested by the Foreign Economic Administration, for guidance in caring for civilians in liberated and occupied areas.

At the request of the French Committee of Liberation, the board recommended methods for surveying nutrition conditions in France, and a program of therapy to follow the surveys.

A symposium of nutrition surveys was held at the December 3, 1945, board meeting. Experts in the field presented survey data and plans for future surveys. These papers were mimeographed and 2,000 copies distributed, with the aid of the War Food Administration, to interested workers in the nutrition field.

Nutrition in Newfoundland.—At the request of the Commissioner for Public Health and Welfare of Newfoundland, a group of scientists, including several board members, in August 1944 conducted a survey of the nutritional status of the people of Newfoundland. In September 1945, the board, with funds granted for the purpose, printed and distributed 184,000 copies of a report based on this survey to physicians, dentists, nutritionists, and other interested groups in the United States.

The enrichment program, which the board has actively supported since its organization, continues to grow; 18 States and 2 Territories of the United States have passed compulsory enrichment legislation. A conference on corn-products enrichment, with representatives of the corn-milling industries, the State nutrition committees, the three Southern States that have passed corn-enrichment legislation, and several vitamin-premix manufacturers, was held August 8 in Chicago. The members of the committee felt that the conference helped in planning a unified approach to problems involved in the practical execution of the corn-enrichment program.

The committee on food composition has prepared the third revision of the Tables of Food Composition, per 100 grams and per pound bases. At the request of the War Department the committee has conducted the following studies:

Losses of vitamins during storage of the Army 10-in-1 ration;
Vitamin assay of various Army ration components;
Analysis of Australian emergency and operations rations;
Assay of miscellaneous food items for Tables of Food Composition;
Losses in nutritive values of foods during cooking;
Collaborative studies to establish methods for vitamin A and B vitamin analyses;
Tables of Food Composition prepared by the committee on food composition, and published jointly by the committee on food composition and the Bureau of Human Nutrition and Home Economics;
Tables comparing items listed in the US/UK/UNRRA and in the NRC 1944 Tables of Food Composition, for use in calculating international food needs.

Publications.—The following publications were prepared by committees of the Food and Nutrition Board and published by the National Research Council:

Principles Underlying Studies of Nutrition Pertaining to the Influence of Supplements on Growth, Physical Fitness, and Health, report by the committee on diagnosis and pathology of nutritional deficiencies;
The facts about Enrichment of Flour and Bread, prepared by the committee on cereals;
Enrichment of Flour and Bread, a history of the Movement, prepared by Russell M. Wilder and Robert R. Williams, with the aid of the committee on cereals;
A Supplement to the Facts about Enrichment of Flour and Bread, prepared by the committee on cereals. This pamphlet brings the information on enrichment up to date.

The War Food Administration published a report prepared by the committee on the nutrition of industrial workers in collaboration with the War Food Administration entitled, "Industrial Feeding Management."

DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

(LEONARD CARMICHAEL, chairman; RALPH LINTON, vice chairman)

Because the work of the National Research Council in the fields of anthropology and psychology deals so largely with selection and training of personnel, it has closely followed the various phases of national mobilization. During the year just ended, the work of the division as reported last year has continued with certain shifts in emphasis.

The committee on African anthropology, under the chairmanship of Dr. M. J. Herskovits, held a meeting on March 16, 1945, to review its past work in connection with the war effort and to discuss possible future activities. After considerable discussion the following objectives were formulated: (1) To promote in the United States the scientific study of African peoples; (2) to constitute a group to which research organizations in other countries concerned with Africa can turn for cooperation and coordination of effort; (3) to advise the National Research Council on matters pertaining to the peoples of Africa; and (4) to make itself available to Government and other agencies for consultation where questions arise within its field of competence. Since its organization in 1942, this committee has made available to Government agencies a considerable amount of data on African peoples.

As was the case last year, the committee on applied psychology and the war, Mr. John M. Stalnaker, chairman, has supported preliminary investigations of problems of immediate interest to the armed services, this support being derived from funds provided under a contract between the Office of Scientific Research and Development and the National Academy of Sciences.

The committee on basic needs in American archeology, under the chairmanship of Dr. Wm. Duncan Strong, remained for the most part inactive during the war period except for taking certain steps designed to prevent indiscriminate looting of archeological remains in the Aleutians, Alaska, and parts of Canada. However, early in 1945 it became apparent that in the event that certain proposed River Valley authorities should be sanctioned by the Federal Government, the committee and other scientific groups should be prepared to see that archeological remains in the river valleys concerned be conserved and made available for study. Following an exploratory meeting to discuss this problem, held on January 22, 1945, a resolution was drawn up by the chairman, Dr. William S. Webb, and Mr. Frederick Johnson, making recommendations which should be embodied in the laws establishing any such authorities. It is anticipated that this will be published in an early issue of Science. In the spring of this year a committee for the recovery of archeological remains was organized, the membership consisting of representatives of the American Council of Learned Societies, the Society for American Archeology, the American Anthropological Association, the Smithsonian Institution, and the Research Council's committee on basic needs in American archeology. This new committee will serve as an action committee, whereas the committee of this division will deal with less immediate scientific problems arising in the field of archeology.

The committee on child development, under the chairmanship of Dr. R. S. Woodworth, met in New York City on February 25 and 26, 1945, at which time a broad program was formulated. This program involves the possible appointment of a full-time executive secretary, to be located in Washington, who would act as liaison officer for the committee with various welfare agencies and sources of support for research in the field of child development. In partial fulfillment of the recommendations of the committee, there has recently been appointed a subcommittee on finance, which will attempt to secure funds for implementing not only the committee program in general but also a subcommittee on adolescence, which will presumably be appointed at the opportune time for the purpose of participating in the welfare of youth after the war. The personnel of the committee has been changed to some extent by the addition of a representative from the field of medical research and one from dental research, and a scheme of gradually changing the membership of the committee has been worked out in detail. At the February meeting the committee also recommended the establishment of a central committee to deal with the problem of translating scientific findings into living habits—a problem in which the committee on food habits is very much interested at the present time.

The Society for Research in Child Development, with offices in the National Research Council Building, has continued its publication program in spite of many wartime difficulties.

During the past year the committee on classification of military personnel advisory to the Adjutant General, under the chairmanship of Dr. W. V. Bingham, has continued its valuable work, with a certain change of emphasis. For example, two of the problems which have assumed importance are the measurement of proficiency of enlisted men and officers and reconditioning and convalescent training. Because of the increasing number of psychoneurotic convalescents and the need for adequate care of these soldiers, the Surgeon General and the Adjutant General have collaborated in a program of procurement and training of clinical psychologist officers and their assignment to work with psychiatrist officers in mental hygiene clinics, convalescent training hospitals, and neuropsychiatric wards. A subcommittee of the committee on classification of military personnel, known as the advisory board on clinical psychology, was appointed to assist in this program of selection and training of officers. Other committee recommendations during the year have included a new battery of induction station tests, a new Army general classification test, a simplified individual test of mental ability to be used in cases where a group test would not be feasible, and a screening test of officer candidates.

The emergency committee in psychology, Maj. Karl M. Dallenbach, chairman, has held but two meetings this year but has kept in close touch with the activities of groups in the services, coordinate committees, Government agencies, and projects which it has stimulated. At the request of Dr. H. E. Burtt, chairman, the subcommittee on psychological aspects of readjustment was discharged in December 1944. A special committee on refresher courses for returning psychologists was appointed under the chairmanship of Dr. Harry Helson as a result of a proposal submitted at the 1944 annual meeting of the division by Dr. Gordon Allport. The subcommittee on a textbook in military psychology has completed its original and major project, a text entitled "Psychology for the Armed Services." Sales of Psychology for the Fighting Man and Psychology for the Returning Serviceman have continued to be large, and royalties in the sum of $7,296.57 have accrued to the division from the sale of these two volumes. Other projects of the emergency committee during the year have included preparation of a memorandum concerning the place of psychology in a full rehabilitation program, which was submitted to the National Council on Rehabilitation for its consideration; an unsuccessful attempt to have engineering, science, and management for war-training courses opened to individuals in Government service; a small conference held at the Training School, Vineland, N. J., on professional preparation; and a recommendation to the Social Science Research Council that a committee on interpersonal hostility be formed within that organization. Because of the shift in problems dealt with by this committee from emergency to professional and postwar problems, it has been deemed desirable that the committee and its then-existing subcommittees be discharged as of December 31, 1945.

As a result of many conferences with representatives of the services, Government agencies, and consultants, the committee on history of psychology and the war, under the chairmanship of Dr. R. M. Yerkes, has completed its preparatory work and is awaiting receipt of materials. In the meantime, the members are considering appropriate ways of organizing and presenting the materials to be submitted. To date the sum of $2,500 has been allocated to this project from the Textbook in Military Pyschology Fund.

During the past year the committee on food habits, under the direction of Dr. Carl E. Guthe, chairman, and Dr. Margaret Mead, executive secretary, has continued to advise the Nutrition Programs Branch of the War Food Administration and to coordinate research in this field. Reports of committee studies and of related work have been widely distributed. A great deal of work has gone into the publication of a Manual for the Study of Food Habits (Bull. 111 of the National Research Council), written for the purpose of stimulating research in the field of food habits. In this is also a summary of experimental work, together with an extensive bibliography for the guidance of students interested in this area of work. At the concluding liaison session of the year the discussion was devoted to ways in which scientific findings could be translated into living habits.

A new committee on international cooperation in anthropology, organized under the chairmanship of Dr. M. J. Herskovits, held its first meeting on June 2, 1945. At that time the various members agreed to make contact through correspondence with anthropologists in European and Far Eastern countries for the purpose of discovering the fate of anthropologists, of university departments, of museums and collections, of library collections and manuscript materials, the status of societies and periodicals, and the nature of research and publication activities, with an eye toward resuming international cooperation at the earliest possible moment.

Chairman H. S. Langfeld, of the committee on international cooperation in psychology, has been corresponding with English psychologists with regard to the next International Congress, but it may not be possible to make arrangements for holding a congress until several years after the conclusion of the war. Drs. Janet and Piéron have been heard from, and through the Office of War Information books and reprints have been sent to Dr. Piéron in Paris.

Subsequent to a recommendation made at the annual meeting of the division, both of the above committees were made joint committees with the division of foreign relations.

A large portion of the activities of the committee on Latin-American anthropology have been taken over by such organizations as the Ethnogeographic Board, the joint committee on Latin-American studies, and others. The chairman, Dr. Wendell C. Bennett, has felt, however, that there is definitely a place for such a committee and that a reorganization would be desirable. Dr. Irvin L. Child has been appointed chairman of the committee on Latin-American psychology, upon recommendation of the former chairman, Dr. J. G. Beebe-Center. Although no meetings have been held, the committee has continued with the reviewing and abstracting of Latin-American psychological literature and assisting in the exchange of information on periodicals between the two continents. It is hoped that in the matter of intercultural relations this committee may collaborate with the committee on international cooperation in psychology.

Upon recommendation of the emergency committee in psychology there was established in the division a committee on release of psychological tests, Dr. C. L. Shartle acting as chairman. In the original recommendation upon which this committee was formed, it was intended that the committee should recommend to the National Research Council the copyrighting of psychological tests and personnel procedures, the patenting of testing apparatus, and the assignment of copyrights or patents to reputable concerns for manufacture and distribution, these copyrighted tests to be made available without payment of royalties to any department of the Federal Government. This problem has not yet been fully solved.

The committee on selection and training of aircraft pilots, under the chairmanship of Dr. Morris S. Viteles, has continued to be one of the most active committees of the division. Upon completion of 5 years of research under contract with the Civil Aeronautics Administration, the chairman has prepared a report entitled "The Aircraft Pilot: 5 Years of Research—A Summary of Outcomes," which appears as Report No. 46 in the Technical Series. The major development of the past year has been the establishment of a second institute of aviation psychology at Ohio State University. At this institute preparations are under way for the initiation of a study on the relationship between visual measures and flight performance, which is being undertaken at the request of the Civil Aeronautics Administration. The past year has also seen the establishment of close liaison with such medical groups as the Aero Medical Association, the School of Aviation Medicine, and the National Research Council committee on medical problems of civil aviation.

The Handbook of South American Indians, a project of the committee on the survey of South American Indians, Dr. J. M. Cooper, chairman, is to appear in a five-volume edition and is, at the present writing, in various stages of completion. These five volumes are to be on the following subjects: I. Marginal Peoples; II. High Civilizations; III. Peoples of the Tropical Forests; IV. Peoples of Northwest South America, Central America, and the Antilles; and V. Language, Physical Anthropology, History, and Comparative Ethnology of the whole continent.

A meeting of the committee on war service of anthropologists, Dr. Ralph Beals, chairman, was held on February 17, 1945, and eventuated in the formation of definite objectives for the coming year. Among these are plans for a history of anthropology and the war from the standpoint both of the impact of the war on this discipline and what anthropology has contributed to the war effort; a projected survey on available personnel and possible employment opportunities; a survey of present teaching methods and curricula in American universities; and an attempt to preserve anthropological data collected by various war agencies which might have some scientific usefulness to the profession in the postwar period.

The Office of Psychological Personnel, under the direction of Dr. Donald G. Marquis, has, in addition to its routine office functions, assisted in furnishing information on psychologists qualified for commissions in the clinical psychology program and in helping the assignment of inductees to psychological duties; has cooperated with various departments of the Government in producing information about vocational opportunities in psychology; and has, through its consultants, prepared three questionnaires for survey purposes: (1) A questionnaire for surveying psychologists in the military services, (2) a questionnaire on contract clinics being set up between the Veterans' Administration and various educational institutions, and (3) a questionnaire intended for graduate departments of universities on existing facilities and post war plans for graduate training in psychology. It has been recommended that this office be discontinued as of December 31, 1945, its records being transferred to the central office of the American Psychological Association, which has been its major source of support since 1942.

REPORT OF THE TREASURER

For the fiscal year ended June 30, 1945

NOVEMBER 15, 1945.

To the PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES:

The statements and schedules that follow constitute the treasurer's report and reflect the financial condition of the National Academy of Sciences (including the National Research Council) as at June 30, 1945, and the results of operations for the fiscal year ended on that date. For the first time the financial statements of the Academy and Research Council have been consolidated in order to present more effectively the total resources of the Academy and the total operations during the reporting period. Schedules subsidiary to the principal statements have been so designed as to permit fairly complete analysis of the financial data relative to any projects or activities.

INVESTMENTS

The investments of the funds of the Academy (including the Research Council) are shown in detail in schedule A-2 and are summarized, by classes of investments, as follows:

	June 30, 1945			Income received during the year
	Book value	Market value	Percent	
U. S. Government bonds	$590,028.13	$589,999	14.10	$10,810.22
Foreign government bonds	10,085.75	10,000	.24	1,061.00
Railroad bonds	604,559.27	652,600	15.59	33,989.30
Other bonds	504,650.95	520,852	12.45	31,745.69
Preferred stocks	623,755.09	671,268	16.04	25,108.85
Common stocks	1,360,957.56	1,588,154	37.95	76,686.07
Mortgages and real estate	173,913.22	81,500	1.95	2,511.70
Cash	70,335.50	70,336	1.68	
Total	3,938,285.47	4,184,709	100.00	181,912.83

During the year ended June 30, 1945, holdings (at market value) of United States Government bonds increased by 6.56 percent, while foreign government bonds, railroad bonds, and other bonds decreased 0.62 percent, 1.52 percent, and 4.12 percent, respectively. The preferred-stock holdings were up 1.01 percent over the previous year, while common stocks and mortgages and real estate decreased 2.16 percent and 0.80 percent, respectively. Cash held for investment was up 1.67 percent.

The total book value of investments (including cash held for investment) increased during the past year by $292,083, due largely to profits on sales of $248,648, and the investment of $40,000 of the National Science Fund cash. The market value of investments owned was

106 percent of the book value on June 30, 1945, as compared with 102 percent a year ago. The investment reserve fund deficit in the Academy's accounts was reduced from $675,368 to $431,039 during the year under review by profits on sales. If the excess of market value over book value on June 30, 1945, were applied to the investment reserve fund deficit, the resulting figure would be a net loss of $184,616. In the same period the rate of return was 4.84 percent on the average book value of all investments.

The principal of the funds participating in the consolidated fund and the income from the pooled investments are summarized in schedule C–1 of this report.

The Bank of New York continued to act as custodian of securities and Mr. Horace S. Ford as financial adviser.

OPERATIONS

During the year ended June 30, 1945, the combined current operations of the Academy and Research Council (summarized in exhibit B and detailed in schedules C–2 and C–3) indicated total income of $1,721,275.98 and total expenses of $1,650,093.69. Consistent with operations during recent years, a large proportion of the activities were in connection with research projects resulting from requests from departments and agencies of the United States Government. The funds received from Government in accordance with formal contracts amounted to $1,084,356.08, or 65 percent of the total funds received from all sources.

Current income received during the year under review for the general purposes of the Academy and Research Council and available for expenditure in accordance with the Academy's internal budgeting procedure amounted to $272,874.77, or 16 percent of the total funds received from all sources. Of this amount, $101,225 was received from the United States Government as partial reimbursement for the Academy's general administrative and overhead expenses incurred in connection with carrying out projects for departments and agencies of the Government. Schedule C–3a reflects in detail the expenditures during the year from the three general fund budgets of the Academy and Research Council which are supported by the unrestricted income referred to above.

Contributions from private sources for the support of non-Government projects amounted to $364,045.13 during the year ended June 30, 1945.

Exhibit C provides data on the condition of the various funds on June 30, 1945, and summarizes the transactions in those funds for the year ended on that date.

Respectfully submitted.

JEROME C. HUNSAKER, *Treasurer*.

EXHIBIT A. NATIONAL ACADEMY OF SCIENCES (INCLUDING NATIONAL RESEARCH COUNCIL)[1]

Balance sheet as at June 30, 1945

	For details see exhibit or schedule	Total	Current funds		Trust and endowment funds	Plant funds
			General	Restricted		
ASSETS						
Cash	A-1	$789, 453. 44		$755, 747. 99	$10, 705. 45	$23, 000. 00
Bonds and stocks (at cost) (market prices $4,032,873, $238,698, $98,814, and $3,695,361, respectively).	A-2	3, 694, 036. 75	$228, 107. 62	95, 434. 70	3, 370, 494. 43	
Mortgage and real estate investments (at cost) (estimated market value $81,500, $15,000, and $66,500, respectively).	A-2	173, 913. 22	25, 000. 00		148, 913. 22	
Advance for pension premiums.		605. 27	605. 27			
Interfund accounts			−122,861.15	122, 861. 15		
Property and equipment (at cost):						
Building		1, 457, 202. 48				1, 457, 202. 48
Grounds		187, 042. 98				187, 042. 98
Equipment (less reserve for depreciation of $23,000).[2]		51, 943. 74				51, 943. 74
Total assets		6, 354, 197. 88	130, 851. 74	974, 043. 84	3, 530, 113. 10	1, 719, 189. 20
CAPITAL ACCOUNTS						
Carnegie Endowment Fund	C	3, 550, 000. 00			3, 550, 000. 00	
Other funds	C	3, 235, 237. 30	130, 851. 74	974, 043. 84	411, 152. 52	1, 719, 189. 20
Total		6, 785, 237. 30	130, 851. 74	974, 043. 84	3, 961, 152. 52	1, 719, 189. 20
Less: Investment reserve fund.[3]	C	−431, 039. 42			−431, 039. 42	
Total capital accounts		6, 354, 197. 88	130, 851. 74	974, 043. 84	3, 530, 113. 10	1, 719, 189. 20

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[1] The accounts of the National Academy of Sciences (including the National Research Council) have been maintained substantially on a cash basis. The above statement, therefore, does not reflect grants receivable under Government contracts and agreements of approximately $235,000 at June 30, 1945; commitments, incurred as at June 30, 1945, principally in connection with Government contracts, of approximately $240,000; depreciation accrued on the Academy building; and minor amounts of receivables from interest, dues, and sales of publications. As at June 30, 1945, the Rockefeller Foundation and other organizations had made appropriations to the Academy amounting to approximately $830,000 to be administered over a period of from 1 to 3 years by the Academy for the purpose of establishing predoctoral fellowships and conducting research in various scientific endeavors.

[2] In addition to the amount of equipment shown in the above balance sheet, the Academy was the custodian at June 30, 1945, of equipment acquired in connection with work under contracts with various Government agencies amounting to approximately $100,000.

[3] The investment reserve fund was created by the Council of the Academy in 1925 to preserve the principal of trust and endowment funds, and net losses on sales of investments since then, less transfers of 5 percent of the annual income of certain of the funds (permission of donor pending on 1 fund of $20,000 principal amount), have been charged thereto. No segregation of profits and losses on sales of investments comprising the investment reserve fund has been maintained in the accounts of the Academy, and in the balance sheet, therefore, the Academy has deducted the reserve fund from trust and endowment funds against which the major portion of the reserve fund applies.

SCHEDULE A-1.—*Cash on hand and in banks as at June 30, 1945*

On hand:		
Petty cash funds	$5,845.00	
Stamp fund	1,500.00	
		$7,345.00
In banks:		
Washington:		
Riggs National Bank (treasurer's account)	678,757.38	
American Security & Trust Co. (business manager's account)	23,996.00	
		702,753.38
New York:		
Bank of New York:		
National Academy of Sciences	78,762.97	
National Research Council	592.09	
		79,355.06
Total (exhibit A)		789,453.44

SCHEDULE A-2.—*Investments owned as at June 30, 1945*

	Face amount or number of shares	Book value	Market value
CURRENT GENERAL FUNDS			
National Academy of Sciences:			
Bonds:			
U. S. Treasury	$100,000	$100,796.88	$103,000
New England Power Association	$1,000	1,030.00	1,027
		101,826.88	104,027
Stocks:			
Inland Steel Co., common	20	1,859.40	1,840
Total current general funds (NAS)		103,686.28	105,867
National Research Council:			
Bonds:			
American & Foreign Power, 5 percent 2030	$10,000	9,725.00	10,100
Bangor & Aroostook R. R. 4 percent 1951	$10,000	8,825.00	9,650
Buffalo, Rochester & Pittsburgh, 4½ percent 1957	$5,000	4,087.50	4,200
Cleveland, Cincinnati, Chicago & St. Louis Ry. "E", 4½ percent 1977	$10,000	9,650.00	9,400
Louisiana & Arkansas R. R., 5 percent 1969	$7,000	7,210.00	7,280
Kingdom of Norway, 4¼ percent 1965	$6,000	6,001.75	6,000
U. S. Treasury, 2¼ percent 1959	$10,000	10,309.25	10,387
Bond Investment Trust of America (Units)	130	13,974.70	13,747
		69,783.20	70,764
Stocks:			
Anaconda Copper Mining Co., common	100	2,840.00	3,475
Commonwealth Edison Co., common	200	4,455.00	6,350
Crane Co., preferred	100	10,457.50	10,875
Detroit Edison Co., common	100	1,879.66	2,275
Eastern Gas & Fuel Associates, preferred	100	7,405.94	9,400
Goodyear Tire & Rubber Co., common	70	7,044.95	7,700
Louisville & Nashville R. R., common	100	5,726.75	5,838
Oklahoma Natural Gas Co., common	80	2,335.80	2,780
Radio Corp. of America, common	104	8,131.96	9,074
Texas Gulf Sulphur Co., common	100	4,360.58	4,300
		54,638.14	62,067
Real estate:			
322-24 West 41st St., New York, N. Y		25,000.00	[1] 15,000
Total current general funds (NRC)		149,421.34	147,831
Total current general funds (NAS and NRC)		253,107.62	253,698

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[1] Estimated.

SCHEDULE A-2.—*Investments owned as at June 30, 1945*—Continued

	Face amount or number of shares	Book value	Market value
CURRENT RESTRICTED FUNDS			
National Academy of Sciences:			
Bonds:			
American & Foreign Power, 5 percent 2030	$13,000	$12,642.50	$13,065
Cleveland, Cincinnati, Chicago & St. Louis Ry. "E", 4½ percent 1977	$1,000	960.00	940
Colorado & Southern Ry., 4½ percent 1980	$5,000	3,262.50	4,175
International T.&T. Co., 4½ percent 1952	$4,000	3,670.00	4,020
Puget Sound Power & Light Co., 4½ percent 1960	$2,000	2,085.00	2,175
U. S. Treasury, 2½ percent 1970	$40,000	40,600.00	40,680
		63,220.00	65,055
Stocks:			
Inland Steel, common	30	2,789.10	2,760
Total current restricted funds (NAS)		66,009.10	67,815
National Research Council:			
Bonds:			
Buffalo, Rochester & Pittsburgh R. R., 4½ percent 1957	$5,000	4,087.50	4,200
Louisiana & Arkansas R. R., 5 percent 1969	$3,000	3,097.50	3,120
New England Power Association, 5 percent 1948	$10,000	10,161.25	10,300
Kingdom of Norway, 4¼ percent 1965	$4,000	4,081.00	4,000
		21,427.25	21,620
Stocks:			
Anaconda Copper Mining Co., common	100	2,840.00	3,475
Detroit Edison Co., common	100	1,904.72	2,275
Pennsylvania R. R., common	35	1,303.69	1,361
Radio Corporation of America, preferred	26	1,949.94	2,268
		7,998.35	9,379
Total current restricted funds (NRC)		29,425.60	30,999
Total current restricted funds (NAS and NRC)		95,434.70	98,814
TRUST AND ENDOWMENT FUNDS			
National Academy of Sciences:			
Bonds:			
Railroad:			
Bangor & Aroostook R. R., 4 percent 1951	$50,000	44,125.00	48,250
Buffalo, Rochester & Pittsburgh R. R., 4½ percent 1957	$50,000	41,526.25	42,000
Central Pacific Ry., 5 percent 1960	$40,000	35,647.50	41,600
Cleveland, Cincinnati, Chicago & St. Louis Ry., 4½ percent 1977	$39,000	37,420.00	36,660
Colorado & Southern Ry., 4½ percent 1980	$45,000	29,848.75	37,575
Delaware, Lackawanna & Western R. R., "A," 4 percent 1993	$60,000	40,800.00	45,900
Delaware, Lackawanna & Western R. R., "B," 4 percent 1993	$20,000	9,261.02	9,400
Missouri, Kansas & Texas, 4 percent 1990	$50,000	43,875.00	45,000
Norfolk & Southern Ry., 4½ percent 1998	$50,000	42,065.00	51,000
Northern Pacific, "A," 4½ percent 2047	$50,000	48,437.50	54,000
Rensselaer & Saratoga, 4 percent 1975	$50,000	48,020.00	53,500
Southern Pacific Co., 4½ percent 1968	$50,000	47,375.00	49,500
Virginia Corporation, "M," 5 percent 1952	$50,000	50,500.00	51,250
West Shore R. R., 4 percent 2361	$50,000	38,478.25	44,000
		563,379.27	609,635
Utility:			
American & Foreign Power, 5 percent 2030	$37,000	35,982.50	37,185
International T. & T. Co., 4½ percent 1952	$46,000	42,200.00	46,230
Interstate Power Co., 5 percent 1957	$50,000	48,670.00	50,375
New England Power Association, 5½ percent 1954	$49,000	50,292.50	50,348
Portland General Electric, 4½ percent 1960	$50,000	49,845.00	51,250
Puget Sound Power & Light, 4¼ percent 1972	$28,000	29,190.00	30,450
Standard Gas & Electric, 6 percent 1966	$50,000	49,235.00	51,750
Western Union Telegraph, 5 percent 1951	$60,000	61,727.50	64,350
		367,142.50	381,938

SCHEDULE A-2.—*Investments owned as at June 30, 1945*—Continued

	Face amount or number of shares	Book value	Market value
TRUST AND ENDOWMENT FUNDS—continued			
National Academy of Sciences—Continued			
Bonds—Continued			
U. S. Government:			
U. S. Treasury, 2¼ percent 1959	$175,000	$178,187.50	$181,562
U. S. Treasury, 2½ percent 1969	$100,000	100,125.00	101,700
U. S. Treasury "G," 2½ percent 1953-56	$150,000	150,000.00	142,500
U. S. Treasury, 2½ percent 1970	$10,000	10,012.50	10,170
		438,325.00	435,932
Other: Bond Investment Trust of America (units)	800	84,220.00	84,480
Stocks:			
Preferred:			
American Car & Foundry Co	500	53,000.00	57,000
American Rolling Mills	500	43,315.37	44,250
Buffalo, Niagara & Eastern Power	500	56,143.75	57,000
Columbia Gas & Electric Corp	500	48,075.00	52,438
Consolidated Edison of New York	500	47,586.75	53,500
Crane Co	500	52,780.00	52,438
Eastern Gas & Fuel Associates	500	37,756.51	47,125
Goodyear Tire & Rubber Co	500	50,025.00	55,000
North American Co	800	44,553.39	44,000
Public Service Corp. of New Jersey	500	50,487.20	53,125
Radio Corporation of America	700	51,941.83	61,075
Republic Steel, prior preferred "A"	500	53,100.00	55,000
		588,764.80	631,951
Common:			
Industrial:			
American Tobacco Co	700	46,265.18	54,250
Anaconda Copper Mining Co	500	14,403.55	17,250
Bendix Aviation Corp	800	40,851.64	41,100
Bulova Watch Co., Inc	500	24,974.64	32,250
Douglas Aircraft Corp	500	36,678.83	45,000
Draper Corp	500	33,007.17	40,000
Dun & Bradstreet	500	18,500.00	19,500
Inland Steel Co	450	33,503.50	41,400
International Nickel Co	1,000	33,834.06	34,500
Kennecott Copper Corp	1,000	35,129.73	38,500
Lehman Corp	1,000	26,349.40	41,875
Montgomery Ward Co	1,000	51,152.26	62,500
National Steel Corp	500	35,024.70	37,250
New Jersey Zinc Co	500	29,059.82	33,000
Phelps-Dodge Corp	1,000	27,443.10	27,875
Phillips Petroleum Corp	1,000	45,735.00	50,000
Reynolds Metals Co	2,000	30,015.92	43,000
Socony Vacuum Oil Co	2,000	30,325.00	32,250
South Porto Rico Sugar Co	500	19,424.52	24,500
St. Joseph's Lead Co	1,000	33,642.74	43,500
Standard Oil Co. of Indiana	1,200	40,875.48	45,900
Texas Gulf Sulphur Co	600	26,528.47	25,800
Twentieth Century Fox Film	1,000	29,736.39	28,500
U. S. Foil Co	2,000	15,906.66	24,000
United Carbon Co	500	36,302.90	38,500
		794,670.66	922,200
Railroad:			
Atchison, Topeka & Santa Fe	800	52,537.93	78,400
Chesapeake & Ohio Ry	1,000	47,493.10	52,000
Louisville & Nashville R. R	500	27,819.20	29,000
Pennsylvania R. R	1,000	31,453.10	38,875
Southern Pacific Co	500	22,368.15	27,000
		181,671.48	225,275
Utility:			
American Gas & Electric	500	15,651.37	18,500
Commonwealth Edison Co	500	10,438.38	15,875
Consolidated Edison Co. of New York	1,000	29,125.36	31,000
Detroit Edison Co	1,500	28,370.32	34,125
Philadelphia Electric Corp	1,400	35,550.73	35,875
		119,136.16	135,375

SCHEDULE A-2.—*Investments owned as at June 30, 1945*—Continued

	Face amount or number of shares	Book value	Market value
TRUST AND ENDOWMENT FUNDS—continued			
National Academy of Sciences—Continued			
Stocks—Continued			
Common—Continued			
Bank and insurance:			
Bank of New York	50	$18, 110. 00	$22, 750
Bankers' Trust Co	600	26, 125. 00	30, 150
Chemical Bank & Trust Co	700	33, 304. 50	40, 600
First National Bank of Boston	800	37, 121. 26	44, 700
Guaranty Trust Co. of New York	100	27, 982. 50	36, 000
		142, 643. 26	174, 200
Other:			
Commercial Credit Co	1, 000	33, 332. 82	44, 875
Commercial Investment Trust Corp	1, 000	57, 208. 48	49, 500
		90, 541. 30	94, 375
Total bonds and stocks, trust and endowment funds (NAS)		3, 370, 494. 43	3, 695, 361
Mortgages:			
229 East 79th St., New York, N. Y., 3½ percent		58, 087. 78	[2] 40, 000
10-16 Manhattan Ave., New York, N. Y		6, 132. 76	[2] 2, 500
Southeast corner 3d Ave. and 170th St., New York, N. Y		28, 000. 00	[2] 12, 000
1601 1st Ave., New York, N. Y		51, 792. 68	[2] 10, 000
		144, 013. 22	64, 500
Real estate: 29 3d Ave., Brooklyn, N. Y		4, 900. 00	[2] 2, 000
Total trust and endowment funds (NAS)		3, 519, 407. 65	3, 761, 861
Grand total [3]		3, 867, 949. 97	4, 114, 373

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[2] Estimated.

[3] Shown on exhibit A as follows:

	Book value	*Market value*
Bonds and stocks	$3, 694, 036. 75	$4, 032, 873
Mortgage and real-estate investments	173, 913. 22	81, 500
Total	3, 867, 949. 97	4, 114, 373

EXHIBIT B.—NATIONAL ACADEMY OF SCIENCES (INCLUDING NATIONAL RESEARCH COUNCIL)

Statement of capital accounts for the year ended June 30, 1945

	Total	Current funds			Trust and endowment funds		Plant funds
		General	Restricted		Fund balances	Investment reserve fund	
			Private	Government contracts			
Balance, June 30, 1944	$6, 192, 550. 70	$267, 551. 34	$619, 815. 67	$306, 265. 85	$3, 957, 862. 83	−$675, 368. 00	$1, 726, 423. 01
Current operations:							
Income:							
Grants and contracts, including Office of Scientific Research and Development (Government) reimbursement of overhead of $101,225	1, 487, 999. 70	111, 225. 60	292, 418. 02	1, 084, 356. 08			
Interest, dividends, and rent	181, 912. 83	158, 050. 06	23, 862. 77				
Dues	25, 015. 64	1, 735. 00	23, 280. 64				
Sales of publications	17, 563. 37	1, 547. 25	16, 016. 12				
Royalties	8, 641. 12	193. 63	8, 447. 49				
Other	143. 32	123. 23	20. 09				
Total income (for details see schedule C-2)	1, 721, 275. 98	272, 874. 77	364, 045. 13	1, 084, 356. 08			
Expenses:							
U. S. Government projects under subcontract	389, 768. 07			389, 768. 07			
Fellowships and grants to others	195, 979. 13		111, 072. 08	84, 907. 05			
Salaries, wages, fees, and pensions	578, 419. 86	152, 839. 63	107, 353. 62	318, 226. 61			
Travel, supplies, and other expenses	473, 871. 26	44, 499. 43	95, 518. 50	342, 176. 39		−8, 323. 06	
Depreciation of equipment	3, 000. 00	3, 000. 00					
Other	9, 055. 37		9, 055. 37				
Total expenses (for details see schedule C-3)	1, 650, 003. 69	200, 339. 06	322, 999. 57	1, 135, 078. 12		−8, 323. 06	
Excess of income over expenses	71, 182. 29	72, 535. 71	41, 045. 56	−50, 722. 04		8, 323. 06	
Transfers among fund capital accounts		−127, 185. 21	113, 630. 86	11, 554. 35	2, 000. 00		
Net profit on sales of investments	248, 648. 23	9, 924. 84	2, 717. 87			236, 005. 52	
Contribution to capital	1, 289. 69				1, 289. 69		
New equipment purchased		−2, 074. 94	−2, 154. 69	−5, 619. 17			9, 848. 80
Adjustments:							
To record petty cash advances and deposit	5, 745. 00	100. 00	625. 00	5, 020. 00			
To adjust June 30, 1944, estimates of income receivable	−128, 135. 42	−70, 000. 00	−58, 135. 42				
To provide a reserve for prior years' depreciation of equipment	−20, 000. 00	−20, 000. 00					
To eliminate from plant funds equipment purchased with U. S. Government funds	−17, 082. 61						−17, 082. 61
Total	−159, 473. 03	−89, 900. 00	−57, 510. 42	5, 020. 00			−17, 082. 61
Balance, June 30, 1945	6, 354, 197. 88	130, 851. 74	707, 544. 85	266, 498. 99	3, 961, 152. 52	−431, 039. 42	1, 719, 189. 20

EXHIBIT C.—NATIONAL ACADEMY OF SCIENCES (INCLUDING NATIONAL RESEARCH COUNCIL)

Statement of fund transactions for the year ended June 30, 1945

	Fund capital June 30, 1944	Current operations		Other transactions		Fund capital June 30, 1945	Represented by—	
		Income [1]	Expenses [2]	Transfers (net)	Other		Investments	Other accounts
Current general funds:								
National Academy of Sciences:								
Carnegie endowment fund, income	$142,857.17	$147,661.53	$63,148.01	−$125,753.00	[3] −$20,070.20	$81,547.49	$95,757.04	−$14,209.55
Academy general fund	12,824.83	17,214.07	18,819.30	13,519.02		24,738.62	7,929.24	16,809.38
Agassiz fund, income		3,463.26	215.46	−3,247.80				
Neally fund, income		1,355.57	84.35	−1,271.22				
Total	155,682.00	169,694.43	82,267.12	−116,753.00	−20,070.20	106,286.11	103,686.28	2,599.83
National Research Council: Council general fund	111,869.34	103,180.34	118,071.94	−10,432.21	[4] −61,979.90	24,565.63	149,421.34	−124,855.71
Total current general funds	267,551.34	272,874.77	200,339.06	−127,185.21	−82,050.10	130,851.74	253,107.62	−122,255.88
Current restricted funds:								
National Academy of Sciences:								
Government projects:								
Academy emergency grant, Academy Government projects	3,617.26	16,534.27	11,935.28	8,012.00		16,228.25		16,228.25
Research board, preliminary expenses			3,454.29	5,000.00		1,545.71		1,545.71
Total Government projects (NAS)	3,617.26	16,534.27	15,389.57	13,012.00		17,773.96		17,773.96
Private grants and other projects (NAS):								
Academy emergency grant	17,185.77			122.56	[5] 425.00	17,733.33		17,733.33
Academy Proceedings	6,287.81	1,780.35		−940.02		7,128.14		7,128.14
Bache Fund, income	7,743.44	3,511.62	240.40			11,014.66		11,014.66
Billings Fund, income		1,662.98	103.00	−1,559.98				
Building Site Fund	8,846.09	530.27	34.94			9,341.42	7,694.40	1,647.02
Building and Grounds Repair Fund			2,181.84	53,000.00		50,818.16		50,818.16
John J. Carty Medal and Award, income	2,118.71	1,732.74	2,895.37			956.08		956.08
Comstock Fund, income	7,234.30	713.15			[6] 449.69	8,397.14	960.00	7,437.14
Consolidated Fund, income	985.08	−985.08						
Draper Fund, income	1,418.18	692.92	43.11			2,067.99		2,067.99
Elliot Fund, income	2,752.15	554.41	1,136.87			2,169.69		2,169.69

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[1] For details see schedule C-2.

[2] For details see schedule C-3.

[3] Depreciation reserve, −$20,000; new equipment, −$70.20; total, −$20,070.20.

[4] Adjustment of June 30, 1944, estimate of income receivable, −$70,000; new equipment, −$2,004.74; petty cash advance, $100; profit on sale of securities, $9,924.84; total, −$61,979.90.

[5] Deposit with air line.

[6] Profit on sales of securities.

	Fund capital June 30, 1944	Current operations		Other transactions		Fund capital June 30, 1945	Represented by—	
		Income [1]	Expenses [1]	Transfers (net)	Other		Investments	Other accounts
Current restricted funds—Continued								
National Academy of Sciences—Continued								
Private grants and other projects (NAS)—Con.								
Emergency Fund Proceedings	$3,327.79					$3,327.79		$3,327.79
Expenses, Fund for Research	107.20		$102.53	−$4.67				
Federal tax withheld account	404.44		404.44					
Gibbs Fund, income	4,127.63	$384.02	23.90			4,487.75		4,487.75
Gould Fund, income	13,406.07	1,546.82	909.80			14,043.09	$9,505.00	4,538.09
Hale Lectureship	385.55					385.55		385.55
Hartley Fund, income	448.56	102.28	5.14			545.70		545.70
Joseph Henry Fund, income	2,415.75	3,093.27	192.32	−2,000.00		3,316.70		3,316.70
Historical, Paul Brockett			2,000.00	2,000.00				
Joint Proceedings	11,869.64	3,417.33	6,816.33	5,000.00		13,470.64		13,470.64
Marsh Fund, income	1,436.52	1,385.44	86.21			2,735.75		2,735.75
Murray Fund, income	1,246.36	692.92	43.11			1,896.17		1,896.17
National Park problems	80.79					80.79		80.79
National Science Fund	17,436.62	65,000.00	379.69	4.67		82,061.60	40,600.00	41,461.60
President's secretarial expense			525.00	600.00		75.00		75.00
Research Board, preliminary expenses		5,000.00	1,013.01		[7] −$1,440.80	2,546.19		2,546.19
Retirement Fund, income	839.63	3,092.43	1,692.41			2,239.65		2,239.65
Scientific Publication Fund	1,767.31	32.75				1,800.06		1,800.06
Special insurance fund	10,045.00		1,270.00			8,775.00		8,775.00
Smith Fund, income	9,689.28	1,129.36	73.36			10,745.28	7,249.70	3,495.58
Thompson Fund, income	3,539.55	692.92	2,175.57			2,056.90		2,056.90
Walcott Fund, income	1,070.74	346.19	21.54			1,395.39		1,395.39
Watson Fund, income	6,680.43	1,346.17	93.97			7,932.63		7,932.63
Total private grants and other projects (NAS)	144,896.39	97,455.26	24,463.86	56,222.56	−566.11	273,544.24	66,009.10	207,535.14
Total, current restricted funds (NAS)	148,513.65	113,969.53	39,853.43	69,234.56	−566.11	291,318.20	66,009.10	225,309.10
National Research Council:								
Government projects:								
Division of engineering and industrial research:								
Highway Research Board		21,666.67	21,666.67					
Metallurgical advisory committee (OSRD)	25,431.77	168,771.29	184,619.67		[8] 1,550.95	11,134.34		11,134.34
War metallurgy committee (WPB)	25,104.00	36,800.00	52,117.29		[9] 592.71	10,379.42		10,379.42
Quartermaster Corps problems	10,560.99	401,407.15	413,736.31		[10] −362.10	−2,130.24		−2,130.24
Aluminum salvage project			3,929.49	5,000.00		1,070.51		1,070.51
Engineering information service	6,143.72		78.21			6,065.51		6,065.51
Committee on prosthetic devices		546.75	4,097.80	5,000.00	[11] 1,000.00	2,448.95		2,448.95

Coast Guard problems		5,500.00				5,500.00		5,500.00
Division of medical sciences:								
Expenses, committee on military medicine	1,463.91			−58.40		1,405.51		1,405.51
Projects, committee on military medicine	6,167.06			−55.60		6,111.46		6,111.46
Committees on Military Medicine, Revolving Fund	62,339.81	194,599.76	194,036.41	64.00	[10] −1,397.40	61,569.76		61,569.76
Committee on materials in medicine and surgery	11,135.65	1,000.00	4,160.17			7,975.48		7,975.48
Medical food requirements	5,999.34	612.70	696.03			5,916.01		5,916.01
Committee on civil aviation medicine		2,500.00	470.41	3,000.00		5,029.59		5,029.59
Division of biology and agriculture:								
Food and nutrition board	7,641.09	32,237.49	32,550.11			7,328.47		7,328.47
Committee on food composition	6,100.52	21,550.01	22,379.38			5,271.15		5,271.15
Division of anthropology and psychology:								
Aircraft Pilots, 1942	731.49		402.77		[12] −218.98	109.74		109.74
Aircraft Pilots, 1943	10,864.18		11,153.58	750.00	[13] 400.00	860.60		860.60
Aircraft Pilots, 1944	81,389.78	17,916.70	98,091.96	−750.00		464.52		464.52
Aircraft Pilots, 1945		88,333.33	20,655.82			67,677.51		67,677.51
Committee on food habits	3,747.48	15,387.89	15,076.59			4,058.78		4,058.78
Committee on service personnel, selection, and training	1,302.26			−1,302.26				
CAA—war training service	2,111.44	1,888.25		−3,999.69				
Analysis of naval positions and tasks	300.00	9,700.00		−10,000.00				
Committee on applied psychology and the war	2,561.69	8,500.00	9,402.94	6,302.26	[11] −2,234.35	5,726.66		5,726.66
Executive board:								
Committee on passive protection against bombing	994.81			−994.81				
Advisory office for scientific and technical personnel	1,413.75			−1,413.75				
Bibliographic service to Central and South America	15,462.83		5,391.74		[13] 20.00	10,091.09		10,091.09
Survey of schools for osteopathy	2,899.93	109.21	9.74	−2,999.40				
Committee on fortification design	10,781.09	13,794.58	12,561.29			12,014.38		12,014.38
Scientific and technical bibliography		25,000.00	12,404.17		[13] 50.00	12,645.83		12,645.83
Total, Government projects (NRC)	302,648.50	1,067,821.81	1,119,688.55	−1,457.65	−599.17	248,725.03		248,725.03

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[1] For details see schedule C-2.

[2] For details see schedule C-3.

[7] New equipment.

[8] New equipment, −$1,249.05; petty cash advances, $2,800; total, $1,550.95.

[9] New equipment, −$157.29; petty cash advances, $750; total, $592.71.

[10] New equipment.

[11] Petty cash advance.

[12] New equipment.

[13] Petty cash advance.

	Fund capital June 30, 1944	Current operations		Other transactions		Fund capital June 30, 1945	Represented by—	
		Income [1]	Expenses [3]	Transfers (net)	Other		Investments	Other accounts
Current restricted funds—Continued								
National Research Council—Continued								
Private grants and other projects								
Division of physical sciences (NRC):								
Revolving Fund for Publication of Mathematical Books	$882.11	$735.37				$1,617.48		$1,617.48
Rotating Fund, Physics Committees	6,854.93	1,874.80				8,729.73		8,729.73
Revolving Fund for Publication of Mathematical Tables	13,083.25	41.50				13,124.75		13,124.75
Journal of Mathematical Tables	485.93	1,993.00	$2,571.51	$450.00		357.42		357.42
Publication of research in biophysics	1,000.00					1,000.00		1,000.00
Division of engineering and industrial research:								
Highway Research Board	4,505.88	11,748.16	9,012.93	−900.95		6,340.16		6,340.16
Heat transmission	373.75					373.75		373.75
Industrial research institute	11,880.59	16,062.52	12,046.32			15,896.79		15,896.79
Highway Research Board, moving expenses	52.67			−52.67				
Mine field clearance project	2,000.00			−2,000.00				
Nonrigid pavement project	896.81	5,780.00	5,484.53			1,192.28		1,192.28
Committee on fatigue in industry		5,000.00	3,520.59			1,479.41		1,479.41
Calcium chloride stabilization		2,400.00	1,592.06	900.95		1,708.89		1,708.89
Division of chemistry and chemical technology:								
Fellowship in protein chemistry	262.03					262.03		262.03
Committee on chemical data for ceramists	433.25	280.95				714.20		714.20
Committee on catalysis	375.50	36.00				411.50		411.50
Division of geology and geography:								
Research Fund, committee on sedimentation	1,181.62	41.39				1,223.01		1,223.01
Ore deposits as related to structural features		540.69	316.84	−223.85				
Division of medical sciences:								
Sex Research Fund	7,254.24	36,732.37	43,786.77			199.84		199.84
Fellowships in medicine	31,469.89	8,693.16	5,567.22		[14] −$31,763.05	2,832.78		2,832.78
Committee on endocrinology	562.14	27,400.00	26,670.14			1,292.00		1,292.00
Fellowship in virus studies and orthopedics	24,885.49		6,361.07			18,524.42		18,524.42
Special medical committees, Carnegie Corp	5,566.64		1,215.09	50.00	[15] −668.04	3,733.51		3,733.51
Welch fellowships	2,936.67	10,063.33	10,436.43			2,563.57		2,563.57
Tropical medicine lectures	3,807.62		2,017.84			1,789.78		1,789.78
Tropical Disease Book Fund	898.50		898.50					
War medical information	63,215.33		31,477.03		[16] −45.85	31,692.45		31,692.45
Lectures in pathology	4,685.38		57.60			4,627.78		4,627.78
Committee on medical records	2,491.22		2,491.22					
Infantile paralysis, special study		907.62	907.62					

Division of biology and agriculture:								
Committee on animal nutrition	200.94	678.61	8.59	−557.74		313.22		313.22
National Livestock and Meat Board fellowships	2,648.91					2,648.91		2,648.91
Pharmaceutical researches	250.73			−250.73				
Committee on human heredity	3,646.90		2,229.42			1,417.48		1,417.48
Committee on aerobiology	1,464.18					1,464.18		1,464.18
Radiation bulletins	25.10			−25.10				
Committee on preservation of natural conditions	112.85		112.85					
Nutrition Foundation Fund	2,319.65	5,730.67	3,171.68			4,878.64		4,878.64
Milbank Memorial Fund	12,361.85	5,000.00	4,374.27			12,987.58		12,987.58
Committee on nutritional aspects of ageing	3,041.86	13,500.00	10,295.35			6,246.51		6,246.51
Joint committee on forestry	617.37		180.41			436.96		436.96
Tropical Plant Research Fund	4,208.40	48.18				4,256.58		4,256.58
Agricultural board			3,593.70	4,500.00		906.30		906.30
General account, food and nutrition board		10,848.42	26.59			10,821.83		10,821.83
Division of anthropology and psychology:								
National intelligence tests	3,186.90	417.56	53.09			3,551.37		3,551.37
Child development abstracts	2,553.62	3,452.23	3,801.45			2,204.40		2,204.40
Directory of anthropologists	24.55	19.10				43.65		43.65
Improved personality tests	18.25		18.25					
Psychological techniques for military service	608.36		205.25			403.11		403.11
Support, division of anthropology and psychology	27.67		27.67					
Office of psychological personnel	1,618.85	12,025.00	9,709.54			3,934.31		3,934.31
Obesity and allergy in childhood	345.44					345.44		345.44
Textbook in military psychology fund	3,842.60	2,308.12	913.67			5,237.05		5,237.05
Milk in American culture		750.00	750.00					
Executive Board:								
International critical tables	27,548.32	2,853.00			[17] 2,268.18	32,669.50	$29,425.60	3,243.90
Annual tables	12,543.43	339.23	5,496.44			7,386.22		7,386.22
Committee on scientific aids to learning	38,547.53		14,999.44			23,548.09		23,548.09
Food committees	139.12			−139.12				
Subcommittee on individual hearing aids	6,714.65		2,381.27			4,333.38		4,333.38
Subcommittee on group hearing aids	3,152.34					3,152.34		3,152.34
Ethnogeographic Board, joint fund	28,886.86		4,180.91		[18] 200.00	24,905.95		24,905.95
Central Purposes Fund	46,572.63	32,500.00	10,210.23	51,657.51		120,519.91		120,519.91
Investigations on palmetto fiber	500.00			−500.00				
Federal tax withheld account	5,916.56		5,916.56					
Office of scientific personnel	2,370.85	14,507.50	14,833.78	1,500.00		3,544.57		3,544.57
Scientific and technical bibliography	616.36	8,000.00	8,616.36					

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[1] For details see schedule C-2.
[2] For details see schedule C-3.
[14] Adjustment of June 30, 1944, estimate of income receivable.
[15] New equipment.
[16] New equipment.
[17] Profit on sale of securities.
[18] Petty cash advance.

Statement of fund transactions for the year ended June 30, 1945—Continued

	Fund capital June 30, 1944	Current operations		Other transactions		Fund capital June 30, 1945	Represented by—	
		Income[1]	Expenses[3]	Transfers (net)	Other		Investments	Other accounts
Current restricted funds—Continued								
National Research Council—Continued								
Private grants and other projects—Continued								
Executive Board—Continued								
Fellowships in the natural sciences	$37,250.83	$7,121.54	$15,791.93		[10] −$26,372.37	$2,208.07		$2,208.07
Book Fund, Reference Library Service	1,956.96	1,609.85	519.59			3,047.22		3,047.22
American Geophysical Union		6,000.00	6,000.00					
Industrial research laboratories			584.00	$3,000.00		2,416.00		2,416.00
Predoctoral fellowships		5,000.00	23.20			4,976.80		4,976.80
National Bureau of Standards projects (with respect to which the National Research Council functions only as a fiscal agent):								
Problems of refrigeration	677.37					677.37		677.37
Impermanency of record	158.11		25.41			132.70		132.70
Acoustic properties of materials	1,015.75		24.90			990.85		990.85
Thermal properties of liquids	1,584.61					1,584.61		1,584.61
Fire resistance of materials	794.34	1,050.00	1,453.14			391.20		391.20
Current meter investigations	126.62					126.62		126.62
Thermal investigations	1,427.34		127.31			1,300.03		1,300.03
Ignition research	2,443.03		976.14			1,466.89		1,466.89
Acidity of citrus fruits	8.44					8.44		8.44
Motion picture projection equipment	1,776.70					1,776.70		1,776.70
Construction of high precision standards	1,606.46		52.46			1,554.00		1,554.00
Experimental optical glass	51.82					51.82		51.82
Investigation on stainless steel sheets	365.83					365.83		365.83
Investigation of high strength reinforcement of concrete	5,000.00		394.05			4,605.95		4,605.95
Strength of metals		2,500.00	25.50			2,474.50		2,474.50
Total, private grants and projects (NRC)	464,919.28	266,589.87	298,535.71	57,408.30	−56,381.13	434,000.61	$29,425.60	404,575.01
Total, current restricted funds (NRC)	767,567.87	1,334,411.68	1,418,224.26	55,950.65	−56,950.30	682,725.64	29,425.60	653,300.04
Total, current restricted funds (NAS and NRC)	916,081.52	1,448,401.21	1,458,077.09	125,185.21	−57,546.41	974,043.84	95,434.70	878,609.14
Trust and endowment funds (NAS):								
Bache Fund, principal	60,000.00					60,000.00	59,582.57	417.43
Carnegie Endowment Fund, principal	3,550,000.00					3,550,000.00	3,109,952.31	440,047.69
Comstock Fund, principal	15,000.00					15,000.00	14,863.68	136.32

Consolidated Fund, principal [20]	287,862.83			2,000.00	[21] 1,289.69	291,152.52	290,368.35	784.17
Gould Fund, principal	20,000.00					20,000.00	19,812.82	187.18
Watson Fund, principal	25,000.00					25,000.00	24,827.92	172.08
	3,957,862.83			2,000.00	1,289.69	3,961,152.52	3,519,407.65	441,744.87
Investment Reserve Fund (deficit)	−675,368.00		−8,323.06		[22] 236,005.52	−431,039.42		−431,039.42
Total trust and endowment funds (NAS)	3,282,494.83		−8,323.06	2,000.00	237,295.21	3,530,113.10	3,519,407.65	10,705.45
Plant funds	1,726,423.01				[23] −7,233.81	1,719,189.20		1,719,189.20
Grand total	6,192,550.70	1,721,275.98	1,650,093.69		90,464.89	6,354,197.88	3,867,940.97	2,486,247.91

[1] For details see schedule C–2.
[2] For details see schedule C–2.
[19] Adjustment of June 30, 1944, estimate of income receivable.
[20] For details see Schedule C–1.
[21] Capital contribution.
[22] Profit on sale of investments.
[23] New equipment, $9,848.80; equipment purchased for Government, −$17,082.61; total −$7,233.81.

SCHEDULE C–1.—*Consolidated fund*

	Balances July 1, 1944	Increases	Balances June 30, 1945	Investment income distributed
Agassiz Fund	$50, 000. 00		$50, 000. 00	$3, 463. 26
Billings Fund	23, 748. 88	$1, 289. 69	25, 038. 57	1, 651. 62
John J. Carty Medal and Award	25, 000. 00		25, 000. 00	1, 732. 74
Draper Fund	10, 000. 00		10, 000. 00	692. 92
Elliot Fund	8, 000. 00		8, 000. 00	554. 41
Gibbs Fund	5, 545. 50		5, 545. 50	384. 02
Hartley Fund	1, 200. 00		1, 200. 00	82. 19
Joseph Henry Fund	45, 163. 50	2, 000. 00	47, 163. 50	3, 093. 27
Marsh Fund	20, 000. 00		20, 000. 00	1, 385. 44
Murray Fund	10, 000. 00		10, 000. 00	692. 92
Nealley Fund	19, 555. 55		19, 555. 55	1, 355. 57
Retirement Fund	44, 649. 40		44, 649. 40	3, 092. 43
Smith Fund	10, 000. 00		10, 000. 00	692. 92
Thompson Fund	10, 000. 00		10, 000. 00	692. 92
Walcott Fund	5, 000. 00		5, 000. 00	346. 19
Total	287, 862. 83	3, 289. 69	291, 152. 52	19, 912. 82

SCHEDULE C–1 (a).—*Trust and endowment funds as at June 30, 1945*

A. Principal of funds, the income from which may be used for general purposes:	
Agassiz Fund: Bequest of Alexander Agassiz, a member of the Academy (1910), for the general uses of the Academy	$50, 000. 00
Carnegie Endowment Fund: By resolution voted Mar. 28, 1919, and later amendments, the Carnegie Corp. of New York pledged $5,000,000 for the purposes of the Academy and the National Research Council, $1,450,000 of this sum to pay for the erection of a building and $3,550,000 to be capitalized at such times as convenient to the corporation in view of its other obligations; the amount remaining in the hands of the corporation to bear interest at the rate of 5 percent per annum and seven installments to complete capitalization	3, 550, 000. 00
Nealley Fund: Bequest of $20,896.01 of George True Nealley in 1925 for the general purposes of the Academy, less refund of $1,500 in November 1926, to a creditor of the estate; this was supplemented by an additional sum of $159.54 from the estate in March 1931	19, 555. 55
B. Principal of funds, the income from which may be used for specifically designated purposes:	
Bache Fund: Bequest of Alexander Dallas Bache, a member of the Academy (1870), to aid researches in physical and natural sciences	60, 000. 00
Billings Fund: Bequest of Mrs. Mary Anna Palmer Draper (Mrs. Henry Draper) in 1915, to support the publication of the Proceedings of the Academy or for other purposes to be determined by the Academy (the estate is still in process of distribution)	25, 038. 57
John J. Carty Medal and Award for the Advancement of Science: Gift of the American Telephone & Telegraph Co. on November 13, 1930, in recognition of the distinguished achievements of John J. Carty as scientist and engineer, and his noteworthy contributions to the advancement of fundamental and applied science, and in appreciation of his great services for many years in developing the art of electrical communication, and as a lasting testimonial of the love and esteem in which he was held by his many thousand associates in the Bell System; the income thereof to be used for a gold medal and award, not oftener than once in two years, by vote of the Academy, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy	25, 000. 00

Schedule C-1 (a).—*Trust and endowment funds as at June 30, 1945*—Con.

B. Principal of funds, the income from which may be used for specifically designated purposes—Continued

Comstock Fund: Gift of Gen. Cyrus B. Comstock, a member of the Academy (1907), to promote researches in electricity, magnetism, or radiant energy through the Comstock prize money to be awarded once in 5 years for notable investigations. This fund has been increased from $12,406.02 to $15,000 by profit from sale of bonds and by transfer from income to capital	$15,000.00
Draper Fund: Gift of Mrs. Henry Draper in 1883 in memory of her husband, a former member of the Academy, to found the Henry Draper Medal to be awarded for notable investigations in astronomical physics; the balance of income is applied to aid research in this science	10,000.00
Elliot Fund: Gift of Margaret Henderson Elliot to found the Daniel Giraud Elliot Gold Medal and Honorarium for the most meritorious work on zoology or paleontology published in each year	8,000.00
Gibbs Fund: Established by gift of Wolcott Gibbs, a member of the Academy (1892), and increased by a bequest of the late Morris Loeb in 1914 for the promotion of researches in chemistry	5,545.50
Gould Fund: Gift of Miss Alice Bache Gould in 1897 in memory of her father, a former member of the Academy, for the promotion of researches in astronomy	20,000.00
Hartley Fund: Gift from Mrs. Helen Hartley Jenkins, 1913–14, in memory of her father, Marcellus Hartley, to found the medal of the Academy awarded for eminence in the application of science to public welfare	1,200.00
Joseph Henry Fund: Contribution of $40,000 by Fairman Rogers, Joseph Patterson, George W. Childs, and others as an expression of their respect and esteem for Prof. Joseph Henry; this sum was deposited with the Pennsylvania Co. for Insurance of Lives and Granting Annuities in trust, with authorization to collect the income thereon and to pay over the same to Prof. Joseph Henry during his natural life, and after his death to his wife and daughters, and after the death of the last survivor to "deliver the said fund and the securities in which it shall then be invested to the National Academy of Sciences, to be thenceforward forever held in trust under the name and title of 'the Joseph Henry Fund'." The death of Miss Caroline Henry on November 10, 1920, removed the last surviving heir of Joseph Henry to the income of the Joseph Henry Fund. The purpose of this fund is to assist meritorious investigators, especially in the direction of original research. The Academy received $39,739.57 from the Pennsylvania Co. for Insurance of Lives and Granting Annuities, to which was added $7,423.93 from income	47,163.50
Marsh Fund: Bequest of Othniel Charles Marsh, a member of the Academy (1909), to promote original research in the natural sciences; to the original bequest of $10,000 the Academy has added interest received from the estate and has authorized the increase of the fund to $20,000 by annual additions from income	20,000.00
Murray Fund: Gift from the late Sir John Murray in 1911 to found the Alexander Agassiz Gold Medal in honor of a former member and president of the Academy, to be awarded for original contribution to the science of oceanography. The sum of $4,000 has been added to the original bequest of $6,000 by transfer from income to capital	10,000.00

SCHEDULE C-1 (a).—*Trust and endowment funds as at June 30, 1945*—Con.

B. Principal of funds, the income from which may be used for specifically designated purposes—Continued

Smith Fund: Gift of Mrs. J. Lawrence Smith in 1884 in memory of her husband, a former member of the Academy, to found the J. Lawrence Smith Gold Medal to be awarded for important investigations of meteoric bodies and to assist, by grants of money, researches concerning such objects	$10,000.00
Thompson Fund: Gift of Mrs. Mary Clark Thompson in 1919, the income thereof to be applied for a gold medal of appropriate design, to be known as the Mary Clark Thompson Gold Medal and to be awarded annually for the most important services to geology and paleontology	10,000.00
Walcott Fund: Gift of Mrs. Mary Vaux Walcott in 1928, in honor of her husband, a former member and president of the Academy, the income thereof to be used for the award of medals and honoraria to persons, the results of whose published researches, explorations, and discoveries in pre-Cambrian or Cambrian life and history, shall be judged most meritorious; the award to be known as the Charles Doolittle Walcott Medal and to be made every five years	5,000.00
Watson Fund: Bequest of James Craig Watson, a member of the Academy (1874), for the promotion of astronomical science through the award of the Watson Gold Medal and grants of money in aid of research	25,000.00

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1945*

	Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current general funds:								
National Academy of Sciences:								
Carnegie Endowment Fund, income	$147,661.53	$147,599.18						$62.35
Academy general fund	17,214.07	452.19	[1] $10,000.00	[2] $5,000.00	$1,735.00			26.88
Agassiz Fund, income	3,463.26	3,463.26						
Nealley Fund, income	1,355.57	1,355.57						
Subtotal	169,694.43	152,870.20	10,000.00	5,000.00	1,735.00			89.23
National Research Council:								
Council general fund	103,180.34	5,179.86		[3] 96,225.60		$1,547.25	$193.63	34.00
Total current general funds	272,874.77	158,050.06	10,000.00	101,225.60	1,735.00	1,547.25	193.63	123.23
Current restricted funds:								
National Academy of Sciences:								
Government projects: Academy emergency grant, Academy Government projects	16,534.27			[4] 16,534.27				
Private grants and other projects:								
Academy proceedings	1,780.35				1,735.00	45.35		
Bache Fund, income	3,511.62	3,511.62						
Billings Fund, income	1,662.98	1,662.98						
Building site fund	580.27	580.27						
John J. Carty Medal and Award, income	1,732.74	1,732.74						
Comstock Fund, income	713.15	713.15						
Consolidated Fund, income	−985.08	−985.08						
Draper Fund, income	692.92	692.92						
Elliot Fund, income	554.41	554.41						
Gibbs Fund, income	384.02	384.02						
Gould Fund, income	1,546.82	1,546.82						
Hartley Fund, income	102.28	82.19						20.09
Joseph Henry Fund, income	3,093.27	3,093.27						
Joint proceedings	3,417.33					3,417.33		
Marsh Fund, income	1,385.44	1,385.44						
Murray Fund, income	692.92	692.92						
National Science Fund	65,000.00		65,000.00					
(Sugar Research Foundation $50,000								
Lord & Taylor Co 15,000								
Total 65,000)								

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[1] Lord & Taylor Co. award.

[2] Office of Scientific Research and Development, on account of administrative overhead.

[3] Office of Scientific Research and Development, on account of administrative overhead.

[4] Office of Scientific Research and Development, on account of administrative overhead.

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1945*—Continued

	Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued								
National Academy of Science—Continued								
Private grants and other projects—Continued								
Research Board, preliminary expenses (Carnegie Corp. of New York)	$5,000.00		$5,000.00					
Retirement Fund, income	3,092.43	$3,092.43						
Scientific Publication Fund	32.75					$22.50	$10.25	
Smith Fund, income	1,129.36	1,129.36						
Thompson Fund, income	692.92	692.92						
Walcott Fund, income	346.19	346.19						
Watson Fund, income	1,346.17	1,346.17						
Total private grants and other projects (NAS)	97,455.26	22,204.74	70,000.00		$1,735.00	3,485.18	10.25	$20.09
Total current restricted funds (NAS)	113,989.53	22,204.74	70,000.00	$16,534.27	1,735.00	3,485.18	10.25	20.09
National Research Council:								
Government projects:								
Division of engineering and industrial research:								
Highway Research Board (Public Roads Administration)	21,666.67			21,666.67				
Metallurgical advisory committee (OSRD) (Office of Scientific Research and Development)	168,771.29			168,771.29				
War metallurgy committee (WPB)	36,800.00			36,800.00				
Quartermaster Corps problems	401,407.18			401,407.18				
(Office of Scientific Research and Development ... $170,353.18								
War Department ... 231,054.00								
Total ... 401,407.18)								
Committee on prosthetic devices (Office of Scientific Research and Development)	546.75			546.75				
Coast Guard Problems (U. S. Coast Guard)	5,500.00			5,500.00				
Division of medical sciences:								
Committees on military medicine (Office of Scientific Research and Development)	194,599.76			194,599.76				
Committee on materials in medicine and surgery (War Production Board)	1,000.00			1,000.00				
Medical food requirements (War Food Administration)	612.70			612.70				
Committee on civil aviation medicine (Civil Aeronautics Administration)	2,500.00			2,500.00				
Division of biology and agriculture:								
Food and nutrition board (War Food Administration)	32,237.49			32,237.49				
Committee on food composition (War Department)	21,550.01			21,550.01				

Division of anthropology and psychology:								
Aircraft Pilots, 1944 (Civil Aeronautics Administration)	17,916.70			17,916.70				
Aircraft Pilots, 1945 (Civil Aeronautics Administration)	88,333.33			88,333.33				
Committee on food habits (War Food Administration)	15,387.89			15,387.89				
CAA—War Training Service (Civil Aeronautics Administration)	1,888.25			1,888.25				
Analysis of naval positions and tasks (Navy Department)	9,700.00			9,700.00				
Committee on applied psychology and the war (Office of Scientific Research and Development)	8,500.00			8,500.00				
Executive board:								
Survey of schools for osteopathy (Department of Labor)	109.21			109.21				
Committee on fortification design (War Department)	13,794.58			13,794.58				
Scientific and technical bibliography (Coordinator of Inter-American Affairs)	25,000.00			25,000.00				
Total Government projects (NRC)	1,067,821.81			1,067,821.81				
Private grants and other projects (NRC):								
Division of physical sciences:								
Revolving fund for publication of mathematical books	735.37						735.37	
Rotating fund, physics committees	1,874.80					331.50	1,543.30	
Revolving fund for publication of mathematical tables	41.50					41.50		
Journal of Mathematical Tables	1,993.00					1,993.00		
Division of engineering and industrial research:								
Highway Research Board	11,748.16		1,745.00		5,433.12	4,570.04		
(Asphalt Institute $1,020								
Calcium Chloride Association 600								
National Slag Association 100								
Theodore R. Kendall 25								
Total 1,745)								
Industrial Research Institute	16,062.52				16,962.52			
Nonrigid pavement project (Asphalt Institute)	5,780.00		5,780.00					
Calcium chloride stabilization (Calcium Chloride Association)	2,400.00		2,400.00					
Committee on fatigue in industry (Josiah Macy, Jr., Foundation)	5,000.00		5,000.00					
Division of chemistry and chemical technology:								
Committee on chemical data for ceramists	280.95					280.95		
Committee on catalysts	36.00						36.00	
Division of geology and geography:								
Research Fund, committee on sedimentation	41.39					38.19	3.20	
Ore deposits as related to structural features	540.69						540.69	
Division of medical sciences:								
Sex Research Fund (Rockefeller Foundation)	36,732.37		36,732.37					
Fellowships in medicine (Rockefeller Foundation)	8,693.16		8,693.16					
Committee on endocrinology (John and Mary R. Markle Foundation)	27,400.00		27,400.00					
Welch fellowships (Rockefeller Foundation)	10,063.33		10,063.33					
Infantile paralysis, special study (National Foundation for Infantile Paralysis)	907.62		907.62					

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1945*—Continued

		Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued									
National Research Council—Continued									
Private grants and other projects (NRC)—Continued									
Division of biology and agriculture:									
Committee on animal nutrition		$678.61					$678.61		
Nutrition Foundation Fund		5,730.67		[1] $5,000.00			730.67		
Milbank Memorial Fund (Milbank Memorial Fund)		5,000.00		5,000.00					
Committee on nutritional aspects of ageing (Josiah Macy, Jr. Foundation)		13,500.00		13,500.00					
Tropical Plant Research Fund		48.18	$48.18						
General account, food and nutrition board		10,848.42		10,750.00			98.42		
(Standard Brands, Inc.	$750								
Merck & Co., Inc	5,000								
Mead, Johnson & Co	5,000								
Total	10,750)								
Division of anthropology and psychology:									
National intelligence tests		417.56						$417.56	
Child development abstracts		3,452.23				$50.00	3,402.23		
Directory of anthropologists		19.10					19.10		
Office of psychological personnel		12,025.00		12,025.00					
(American Psychological Association	$10,000								
American Association for Applied Psychology	2,000								
Society for the Psychological Study of Social Issues	25								
Total	12,025)								
Textbook in Military Psychology Fund		2,308.12						2,308.12	
Milk in American Culture (Evaporated Milk Association)		750.00		750.00					
Executive board:									
International Critical Tables		2,853.00						2,853.00	
Annual Tables		339.23					339.23		
Central Purposes Fund (Rockefeller Foundation)		32,500.00		32,500.00					
Office of scientific personnel		14,507.50		14,500.00			7.50		
(Geological Society of America	$6,000								
American Mathematical Society	2,500								
American Institute of Physics	6,000								
Total	14,500)								
Scientific and technical bibliography (Book Publishers' Bureau, Inc.)		8,000.00		8,000.00					
Fellowships in the natural sciences (Rockefeller Foundation)		7,121.54		7,121.54					
Book fund, reference library service		1,609.85	1,609.85						

American Geophysical Union (Rockfeller Foundation)		6,000.00		6,000.00					
Predoctoral fellowships (Rockefeller Foundation)		5,000.00		5,000.00					
National Bureau of Standards projects:									
Fire resistance of materials		1,050.00		1,050.00					
(Philip Carey Manufacturing Co.	$600								
Gypsum Association	250								
Albi Chemical Corp	200								
Total	1,050)								
Strength of Metals (American Steel Foundries)		2,500.00		2,500.00					
Total private grants and other projects (NRC)		266,589.87	1,658.03	222,418.02		21,545.64	12,530.94	8,437.24	
Total current restricted funds (NRC)		1,334,411.68	1,658.03	222,418.02	$1,067,821.81	21,545.64	12,530.94	8,437.24	
Total current restricted funds (NAS and NRC)		1,448,401.21	23,862.77	292,418.02	1,084,356.08	23,280.64	16,016.12	8,447.49	$20.09
Grand total		1,721,275.98	181,912.83	302,418.02	1,185,581.68	25,015.64	17,563.37	8,641.12	143.32

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[1] Nutrition Foundation, Inc.

SCHEDULE C–3.—*Statement of expenses for the year ended June 30, 1945*

	Total	Personal services	Expenses and supplies	Subcontracts	Grants and fellowships	Other
Current general funds:						
National Academy of Sciences:						
Carnegie Endowment Fund, income (for details see schedule C-3a)	$63, 148. 01	$40, 059. 56	$23, 088. 45			
Academy General Fund (for details see schedule) C-3a	18, 819. 30	14, 466. 53	4, 352. 77			
Agassiz Fund, income	215. 46	55. 77	159. 69			
Nealley Fund, income	84. 35	21. 85	62. 50			
Subtotal	82, 267. 12	54, 603. 71	27, 663. 41			
National Research Council:						
Council general fund (for details see schedule C-3a)	118, 071. 94	98, 235. 92	19, 836. 02			
Total current general funds	200, 339. 06	152, 839. 63	47, 499. 43			
Current restricted funds:						
National Academy of Sciences:						
Government projects:						
Academy emergency grant, Academy Government projects	11, 935. 28	9, 696. 27	2, 239. 01			
Research board, preliminary expenses	3, 454. 29	2, 726. 80	727. 49			
Total, Government projects (NAS)	15, 389. 57	12, 423. 07	2, 966. 50			
Private grants and other projects:						
Bache Fund, income	240. 40	65. 78	174. 62			
Billings Fund, income	103. 00	26. 54	76. 46			
Building site fund	34. 94	8. 43	26. 51			
Building and grounds repair fund	2, 181. 84		2, 181. 84			
John J. Carty Medal and Award, income	2, 895. 37	27. 92	2, 867. 45			
Draper Fund, income	43. 11	11. 15	31. 96			
Elliot Fund, income	1, 136. 87	8. 93	752. 94		$375. 00	
Expenses, fund for research	102. 53		102. 53			
Federal tax withheld account	404. 44					$404. 44
Gibbs Fund, income	23. 90	6. 20	17. 70			
Gould Fund, income	909. 80	32. 46	77. 34		800. 00	
Hartley Fund, income	5. 14	1. 35	3. 79			
Joseph Henry Fund, income	192. 32	50. 37	141. 95			
Historical – Paul Brockett	2, 000. 00	2, 000. 00				
Joint Proceedings	6, 816. 33	1, 024. 84	5, 791. 49			
Marsh Fund, income	86. 21	22. 33	63. 88			
Murray Fund, income	43. 11	11. 15	31. 96			
National Science Fund	379. 69		284. 07			95. 62
President's secretarial expense	525. 00	525. 00				
Research Board, preliminary expenses	1, 013. 01		1, 013. 01			
Retirement fund, income	1, 692. 41	1, 549. 82	142. 59			
Special insurance fund	1, 270. 00		1, 270. 00			
Smith Fund, income	73. 36	19. 58	53. 78			
Thompson Fund, income	2, 175. 57	11. 15	1, 413. 12		751. 30	
Walcott Fund, income	21. 54	5. 58	15. 96			
Watson Fund, income	93. 97	27. 40	66. 57			
Total private grants and other projects (NAS)	24, 463. 86	5, 435. 98	16, 601. 52		1, 926. 30	500. 06
Total current restricted funds (NAS)	39, 853. 43	17, 859. 05	19, 568. 02		1, 926. 30	500. 06
National Research Council:						
Government projects:						
Division of engineering and industrial research:						
Highway Research Board	21, 666. 67	19, 497. 61	2, 169. 06			
Metallurgical advisory committee (OSRD)	184, 619. 67	95, 682. 11	88, 937. 56			
War metallurgy committee (WPB)	52, 117. 29	20, 808. 04	31, 309. 25			
Quartermaster Corps problems	413, 736. 31	6, 022. 96	18, 672. 45	$389,040.90		

SCHEDULE C-3.—*Statement of expenses for the year ended June 30, 1945*—Continued

	Total	Personal services	Expenses and supplies	Subcontracts	Grants and fellowships	Other
Current restricted funds—Continued						
National Research Council—Con.						
Govertment projects—Con.						
Division of engineering and industrial research—Con.						
Engineering information service	$78.21		$78.21			
Aluminum salvage project	3,929.49	$20.00	3,909.49			
Committee on prosthetic devices	4,097.80	1,659.16	2,438.64			
Division of medical sciences:						
Committees on military medicine	194,036.41	83,991.68	110,044.73			
Committee on materials in medicine and surgery	4,160.17	1,796.31	2,363.86			
Medical food requirements	696.03	468.05	227.98			
Committee on civil aviation medicine	470.41	95.45	374.96			
Division of biology and agriculture:						
Food and nutrition board	32,550.11	15,191.71	17,358.40			
Committee on food composition	22,379.38	13,938.34	8,441.04			
Division of anthropology and psychology:						
Aircraft Pilots, 1942	402.77		2,132.36		[1] −$1,729.59	
Aircraft Pilots, 1943	11,153.58	1,973.63	1,608.96		7,570.99	
Aircraft Pilots, 1944	98,091.96	13,327.98	15,845.98		68,918.00	
Aircraft Pilots, 1945	20,655.82	4,881.19	5,774.63		10,000.00	
Committee on food habits	15,076.59	11,268.67	3,660.27		147.65	
Committee on applied psychology and the war	9,402.94	946.44	7,729.33	$727.17		
Executive board:						
Bibliographic service to Central and South America	5,391.74	3,936.49	1,455.25			
Survey of schools for osteopathy	9.74		9.74			
Committee on fortification design	12,561.29	5,303.11	7,258.18			
Scientific and technical bibliography	12,404.17	4,994.61	7,409.56			
Total, Government projects (NRC)	1,119,688.55	305,803.54	339,209.89	389,768.07	84,907.05	
Private grants and other projects (NRC): Division of physical sciences: Journal of mathematical tables	2,571.51	39.00	2,532.51			
Division of engineering and industrial research:						
Highway Research Board	9,012.93		9,012.93			
Industrial Research Institute	12,046.32	6,665.00	5,381.32			
Nonrigid pavement project	5,484.53	5,000.00	484.53			
Committee on fatigue in industry	3,520.59	2,770.00	750.59			
Calcium chloride stabilization	1,592.06	1,282.62	309.44			
Division of geology and geography: Ore deposits as related to structural features	316.84		316.84			
Division of medical sciences:						
Sex research fund	43,786.77	1,667.88	632.28		41,486.61	
Fellowships in medicine	5,567.22	555.99	320.93		4,690.30	
Committee on endocrinology	26,670.14	638.31	260.88		25,770.95	
Fellowships in virus studies and orthopedics	6,361.07	22.52	819.09		5,519.46	

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[1] Refunds transferred from income.

Schedule C–3.—*Statement of expenses for the year ended June 30, 1945*—Continued

	Total	Personal services	Expenses and supplies	Subcontracts	Grants and fellowships	Other
Current restricted funds—Continued						
National Research Council—Con.						
Private grants and other projects (NRC)—Continued						
Division of medical sciences—Continued						
Special medical committees, Carnegie Corp.	$1,215.09		$1,215.09			
Welch fellowships	10,436.43	$95.55	83.14		$10,257.74	
Tropical medicine lectures	2,017.84	1,000.00	1,017.84			
Tropical disease book fund	898.50		898.50			
War medical information	31,477.03	24,970.05	6,506.98			
Lectures in pathology	57.60		57.60			
Committee on medical records	2,491.22		11.24			[1] $2,479.98
Infantile paralysis, special study	907.62		907.62			
Division of biology and agriculture:						
Committee on animal nutrition	8.59		8.59			
Committee on human heredity	2,229.42				2,229.42	
Committee on preservation of natural conditions	112.85					112.85
Nutrition foundation fund	3,171.68	1,855.34	1,316.34			
Milbank Memorial Fund	4,374.27	1,359.01	3,015.26			
Committee on nutritional aspects of ageing	10,295.35		10,295.35			
Joint committee on forestry	180.41		180.41			
Agricultural board	3,593.70		3,593.70			
General account, food and nutrition board	26.59		26.59			
Division of anthropology and psychology:						
National intelligence tests	53.09	53.09				
Child development abstracts	3,801.45	3,024.66	776.79			
Improved personality tests	18.25					18.25
Psychological techniques for military service	205.25		205.25			
Support, division of anthropology and psychology	27.67					27.67
Office of psychological personnel	9,709.54	5,005.09	4,704.45			
Textbook in military psychology fund	913.67	62.42	851.25			
Milk in American culture	750.00				750.00	
Executive Board:						
Annual Tables	5,496.44	4,664.42	832.02			
Committee on scientific aids to learning	14,999.44	15,000.00			−.56	
Subcommittee on individual hearing aids	2,381.27	1,800.00	581.27			
Ethnogeographic Board, joint fund	4,180.91	2,071.18	2,109.73			
Central purposes fund	10,210.23	54.89	10,155.34			
Federal tax withheld account	5,916.56					5,916.56
Office of scientific personnel	14,833.78	12,580.55	2,253.23			
Scientific and technical bibliography	8,616.36	6,306.42	2,309.94			
Fellowships in the natural sciences	15,791.93	1,202.61	2,147.46		12,441.86	

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[1] Refund to donor of unexpended balance of grant.

SCHEDULE C-3.—*Statement of expenses for the year ended June 30, 1945*—Continued

	Total	Personal services	Expenses and supplies	Subcontracts	Grants and fellowships	Other
Current restricted funds—Continued						
National Research Council—Con.						
Private grants and other projects (NRC)—Continued						
Executive Board—Con.						
Book fund, reference library service	$519.59		$519.59			
American Geophysical Union	6,000.00				$6,000.00	
Industrial research laboratories	584.00	$32.00	552.00			
Predoctoral fellowships	23.20		23.20			
National Bureau of Standards projects:						
Impermanency of records	25.41		25.41			
Acoustic properties of materials	24.90		24.90			
Fire resistance of materials	1,453.14	1,198.70	254.44			
Thermal investigations	127.31		127.31			
Ignition research	976.14	924.84	51.30			
Construction of high-precision standards	52.46		52.46			
Investigation of high-strength reinforcement of concrete	394.05		394.05			
Strength of metals	25.50	15.50	10.00			
Total private grants and other projects (NRC)	298,535.71	101,917.64	78,916.98		109,145.78	$8,555.31
Total current restricted funds (NRC)	1,418,224.26	407,721.18	418,126.87	$389,768.07	194,052.83	8,555.31
Total current restricted funds (NAS and NRC)	1,458,077.69	425,580.23	437,694.89	389,768.07	195,970.13	9,055.37
Trust and endowment funds:						
Investment reserve fund	−8,323.06		−8,323.06			
Grand total	1,650,093.69	578,419.86	476,871.26	389,768.07	195,970.13	9,055.37

SCHEDULE C-3 (a).—*General fund expenditures for the year ended June 30, 1945*

Carnegie Endowment Fund Income:		
Building and grounds:		
Salaries, office	$3,000.00	
Salaries, employees, building	33,713.64	
Steam heating	2,159.30	
Electricity	2,462.19	
Gas	9.00	
Maintenance of building and grounds	6,399.15	
Insurance	1,843.24	
		$49,586.52
Depreciation of equipment		3,000.00
Fees to financial advisers		3,545.72
Transfer to investment reserve fund		7,015.77
Total (to schedule C-3)		63,148.01
Academy general fund:		
Executive secretary's office salaries		7,500.50
Stationery and miscellaneous office expenses		364.19
Printing, multigraphing, and engraving		174.40
Express and telegrams		72.48
Auditor's fees		250.00

SCHEDULE C-3 (a).—*General fund expenditures for the year ended June 30, 1945*—Continued

Academy general fund—Continued	
Bond of treasurer	$62. 50
Miscellaneous expenses, treasurer's office	157. 54
Annual meeting	212. 69
Autumn meeting	376. 74
Election of members	779. 68
Postage, regular	231. 83
Current publications, preparation for distribution	5. 75
Printing of Biographical Memoirs	1, 475. 60
Contingent fund	3. 10
Pensions and retirement plan	6, 948. 00
Traveling expenses of members of the executive committee of the Council of the Academy	173. 26
Transfer to investment reserve fund	22. 61
Fees to financial advisers	8. 43
Total (to schedule C-3)	18, 819. 30
Council general fund:	
General maintenance:	
Executive board:	
1944	354. 63
1945	2, 869. 28
Library:	
1944	137. 45
1945	655. 76
Publications and publicity:	
1944	891. 37
1945	1, 449. 10
American Geophysical Union:	
1944	83. 04
1945	400. 00
Divisions:	
Physical sciences, 1945	245. 73
Engineering and industrial research:	
1944	251. 92
1945	1, 853. 31
Chemistry and chemical technology:	
1944	14. 16
1945	321. 67
Geology and geography:	
1944	83. 00
1945	295. 15
Medical sciences, 1945	155. 30
Biology and agriculture:	
1944	18. 80
1945	1, 320. 41
Anthropology and psychology, 1945	865. 01
Salaries, 1945	97, 592. 77
Expenses and supplies, 1945	5, 795. 13
Telephone and telegraph, 1945	1, 460. 80
Attorney's fees	85. 00
Auditing and legal fees	675. 00
Fees to financial advisers	198. 15
Total (to schedule C-3)	118, 071. 94

REPORT OF THE AUDITING COMMITTEE

NOVEMBER 7, 1945.

DR. FRANK B. JEWETT,
President, National Academy of Sciences,
Washington, D. C.

DEAR PRESIDENT JEWETT: In accordance with a practice of long standing, authorized by section 5, article V, of the bylaws of the National Academy of Sciences, the auditing committee this year engaged the services of a firm of certified public accountants, Arthur Andersen & Co. of New York, to audit the accounts of the treasurer of the Academy and of the National Research Council.

After an examination of the treasurer's balance sheets and his statements of capital accounts, fund transactions, and investments, and after a review of the system of internal control and the accounting procedures of the Academy in accordance with generally accepted auditing standards, the auditing firm reports that in its opinion the reports of the treasurer present fairly the position of the Academy and the Research Council as of June 30, 1945, except that depreciation of the building has not been recorded in the accounts.

In addition to its general audit, the firm has submitted a number of suggestions concerning accounting procedures and internal control, which have been duly transmitted to the Academy officers concerned.

We accept the report of the auditors as in compliance with the requirements of the bylaws in such matters, and as an endorsement of the treasurer's reports as presenting fairly the fiscal operations of the Academy and the Research Council for the year ending June 30, 1945, the changes in the capital accounts during that year, and the financial situation at its close.

Very truly yours,

ARTHUR L. DAY.
CLAUDE S. HUDSON.
W. C. MENDENHALL, *Chairman.*

APPENDIX A

NATIONAL ACADEMY OF SCIENCES

1. CONSTITUTION

[As amended and adopted Apr. 17, 1872, and further amended Apr. 20, 1875; Apr. 21, 1881; Apr. 19, 1882; Apr. 18, 1883; Apr. 19, 1888; Apr. 18, 1895; Apr. 20, 1899; Apr. 17, 1902; Apr. 18, 1906; Nov. 20, 1906; Apr. 17, 1907; Nov. 20, 1907; Apr. 20, 1911; Apr. 16, 1912; Apr. 21, 1915; Nov. 11, 1924; Nov. 9, 1925; Oct. 18, 1927; Nov. 18, 1929; Sept. 18, 1930; Apr. 24, 1933; Apr. 27, 1936; Apr. 28, 1937; Apr. 22, 1940; Oct. 26, 1942]

Preamble

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States, on the 3d day of March A. D. 1863, and in conformity with amendments to said act approved July 14, 1870, June 20, 1884, and May 27, 1914, the National Academy of Sciences adopts the following amended constitution and bylaws:

Article I—Of Members

Section 1. The Academy shall consist of members, members emeriti, and foreign associates. Members must be citizens of the United States.

Sec. 2. Members who, from age or inability to attend the meetings of the Academy, wish to resign the duties of active membership may, at their own request, be transferred to the roll of members emeriti by a vote of the Academy.

Sec. 3. The Academy may elect 50 foreign associates.

Sec. 4. Members emeriti and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the Academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the Academy.

Article II—Of the Officers

Section 1. The officers of the Academy shall be a president, a vice president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of 4 years, by a majority of votes present, at the annual meeting of the year in which the current terms expire. The date of expiration of the terms of office shall be June 30. In case of a vacancy the election shall be held in the same manner at the meeting when such vacancy occurs or at the next stated meeting thereafter, as the Academy may direct, and shall be for a term expiring on June 30 of the fourth year after that in which the election takes place. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the Academy until the next stated meeting of the Academy.

COUNCIL

SEC. 2. The officers of the Academy, together with six members to be elected by the Academy, and the chief executive officer of the National Research Council (provided he be a member of the Academy) shall constitute a Council for the transaction of such business as may be assigned to them by the constitution of the Academy.

EXECUTIVE COMMITTEE

SEC. 3. There shall be an executive committee of the Council of the Academy, composed of seven members, consisting of the president and vice president of the Academy, the chief executive officer of the National Research Council (provided he be a member of the Academy), the home secretary of the Academy, the treasurer of the Academy, and additional members of the Council of the Academy appointed by the president.

Their terms as members of the executive committee shall be coterminous with the term of their other office.

Except those powers dealing with nominations to membership in the Academy, the executive committee between the meetings of the Council shall have all the powers of the Council of the Academy, unless otherwise ordered by the Council.

The members of the executive committee of the Academy shall by virtue of their office be members of the executive board of the National Research Council and shall represent the Academy at all its meetings.

The president and home secretary of the Academy shall, respectively, be chairman and secretary of the executive committee.

In the absence of the president and the vice president or home secretary, the executive committee may select from among its members a chairman or a secretary pro tem.

The executive committee shall keep regular minutes and shall report all of its proceedings to the Council of the Academy for their information.

Unless otherwise ordered by the Council of the Academy or the executive committee, the executive committee shall meet once in each calendar month, and a special meeting may be called at any time by authority of the chairman, on reasonable notice.

Four members of the executive committee shall constitute a quorum. Letter ballots shall not be valid unless ratified at a meeting.

CUSTODIAN OF BUILDINGS AND GROUNDS

SEC. 4. On recommendation of the president, the Council of the Academy shall appoint a custodian of buildings and grounds, who, except where otherwise provided in the constitution and bylaws, shall have custody of all buildings, grounds, furniture, and other physical property belonging to the National Academy of Sciences or the National Research Council, or entrusted to their care.

He shall be responsible for and shall manage and administer these under such generic rules as the Council of the Academy may make and shall approve all vouchers for pay rolls and disbursements that come under authorized budget items or are specifically authorized by the Council of the Academy for the maintenance and operation of the Academy's and the Research Council's physical property.

He shall hold office at the pleasure of the Council of the Academy and shall receive such salary as it may agree and shall give such bond for the faithful performance of his duties as it may require.

He shall prepare and present to the finance committee of the Academy the buildings and grounds division of the general budget.

ADVISORY COMMITTEE ON BUILDINGS AND GROUNDS

He shall be chairman of a joint advisory committee of five on buildings and grounds, of which two members shall be appointed by the president of the Academy from the Academy Council, and two from the executive board of the National Research Council, which committee shall decide, subject to the approval of the Council of the Academy, all questions of allocation of space and use of public rooms.

FINANCE COMMITTEE

SEC. 5. There shall be a finance committee, of which the treasurer shall be chairman, consisting of the president of the Academy (or in his absence the vice president), the treasurer, the chief executive officer of the National Research Council (provided he be a member of the Academy), and two or three other members of the Academy appointed by the president, one of whom shall be a member of the executive board of the National Research Council.

It shall be the duty of the finance committee to provide for the safe custody of all financial resources of the Academy and to determine all matters relating to the purchase and sale of its securities.

It shall be the further duty of the finance committee to prepare and present to the Council of the Academy for adoption the "general budget," made up of the three "divisional budgets," of the Academy proper, of the Research Council, and of buildings and grounds, which divisional budgets shall be presented to the finance committee, respectively, by the treasurer, the chief executive officer of the National Research Council, and the custodian of buildings and grounds.

The finance committee shall be empowered to employ competent investment counsel (hereinafter called the financial advisor) to advise with the committee upon the purchase and sale of all securities, mortgages, or other investments.

PRESIDENT

SEC. 6. The president of the Academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the Academy, of the Academy Council, and of the executive board of the National Research Council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members or other persons especially conversant with the subjects, and report thereon to the Academy at its meeting next ensuing; and, with the Council, shall direct the general business of the Academy.

GOVERNMENT REQUESTS

The president shall be ex officio a member of all committees empowered to consider questions referred to the Academy by the Government of the United States.

SECRETARIES

SEC. 7. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and Council in cases of doubt, and reporting their action to the Academy at one of the stated meetings in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

It shall be the duty of the home secretary to keep the minutes of each business and scientific session, and after approval to enter these upon the permanent records of the Academy.

TREASURER

SEC. 8. The treasurer shall attend to all receipts and disbursements of the Academy, giving such bond and furnishing such vouchers as the Council may require. He shall collect all dues, assessments, and subscriptions, and keep a set of books showing a full account of receipts and disbursements and the condition of all funds of the Academy. He shall be the custodian of the corporate seal of the Academy.

ADMINISTRATIVE COMMITTEE, NATIONAL RESEARCH COUNCIL

SEC. 9. The president, vice president, home secretary, and treasurer shall be members of the administrative committee of the National Research Council and shall represent the Academy at all its meetings.

ARTICLE III—OF THE MEETINGS

ACADEMY

SECTION 1. The Academy shall hold one stated meeting, called the annual meeting, in April of each year in the city of Washington, and another stated meeting, called the autumn meeting, at a place to be determined by the Council. The Council shall also have power to fix the date of each meeting.

Special business meetings of the Academy may be called, by order of eight members of the Council, at such place and time as may be designated in the call.

Special scientific meetings of the Academy may be held at times and places to be designated by a majority of the Council.

SEC. 2. The names of the members present at each session of a meeting shall be recorded in the minutes, and 20 members shall constitute a quorum for the transaction of business.

SEC. 3. Scientific sessions of the Academy, unless otherwise ordered by a majority of the members present, shall be open to the public; sessions for the transaction of business shall be closed.

COUNCIL OF THE ACADEMY

SEC. 4. Stated meetings of the Council shall be held during the stated or special meetings of the Academy, and four members shall constitute a quorum for the transaction of business. Special meetings of the Council may be convened at the call of the president and two members of the Council or of four members of the Council.

DUES IN ARREARS

SEC. 5. No member whose dues are in arrears shall vote at any business meeting of the Academy.

ARTICLE IV.—OF ELECTIONS AND REGULATIONS

SECTION 1. All elections of officers and members shall be by ballot, and each election shall be held separately.

SEC. 2. The time for holding an election of officers shall be fixed by the Academy at least 1 day before the election is held.

COUNCIL OF THE ACADEMY

SEC. 3. The election of six members of the Council shall be as follows:

At the annual meeting in April 1907, six members of the Council to be elected, of whom two shall serve for 3 years, two for 2 years, and two for 1 year, their respective terms to be determined by lot. Each year thereafter the terms of two members shall expire and their successors, to serve for 3 years, shall be elected at the annual meeting in each year. The date of expiration of the terms shall be June 30.

SECTIONS

SEC. 4. The Academy shall be divided by the Council into sections representing the principal branches of scientific research. Each section shall elect its own chairman to serve for 3 years. The chairman shall be responsible to the Academy for the work of his section.

ADVISORY COMMITTEE ON MEMBERSHIP

To provide that the Academy shall be more adequately representative of the potential scientific effort of the country and better able to discharge its obligations to Government, the Council of the Academy, acting with the chairmen of the sections, shall be an advisory committee on membership which shall recommend numbers of new members to the various sections. The numbers thus recommended to a section are to be for 3 years in advance. The advisory committee on membership may organize temporary nominating groups either by subdividing a present section into two or more groups or by forming new intersectional or extrasectional groups to which numbers of new members may be assigned. Such temporary nominating groups may then nominate new members in accordance with the rules laid down for sections.

NOMINATIONS

Nominations to membership in the Academy shall be made in writing and approved by two-thirds of the members voting in a section on the branch of research in which the person nominated is eminent, or by a majority of the Council, or by a majority (however distributed) of the members voting in any two sections. The nomination shall be sent to the home secretary by the chairman of the section before

January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the Academy.

ELECTION PROCEDURE

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which must be transmitted to the home secretary at least two weeks in advance of the annual meeting, and a final ballot, to be taken at the meeting.

PREFERENCE BALLOT

Preference ballot.—From the list of nominees submitted by the home secretary, each member shall select and inscribe on a ballot, to an extent not greater than one-half nor less than one-third the list, those names which he prefers, as these limits shall be interpreted by the home secretary in his discretion, and announced by him, no weight being attached to the order of the names, and ballots not complying with these requirements being discarded. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

After the preference list has been made up in the manner stated, the president, acting for the Council, may request permission to advance one or more nominees to a higher place on grounds of the general interests of the Academy. If a majority of the members of the Academy present favor such an advance it shall be made. The chairman of any section having two or more nominees on the list may, when its first nominee is reached, request the permission of the Academy to interchange the positions (on the preference list) of the nominees of his section, without altering in any way the positions of nominees from other sections. If a majority of the members of the Academy present favor permitting a section to make such interchange of its own nominees, it shall be done before proceeding further with the election.

FINAL BALLOT

A vote shall be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receives two-thirds of the votes cast and not less than 30 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until 30 nominees shall have been elected, or until the total membership of the Academy shall have reached 450, or until the Academy shall terminate the election by vote as provided below. In voting the final ballot, members shall inscribe on the ballot the name of the nominee with either "*yes*" or "*no*" or "*blank*", and only ballots thus inscribed shall be counted. Members appointed as tellers must vote before counting the ballots.

If, however, a nominee receives a majority of the votes of those members voting in the preference ballot he may be declared elected by a two-thirds voice vote.

ELECTION

Not more than 30 members shall be elected at one annual meeting.

It shall be in order at any point in the course of an election to move that the election be closed. If two-thirds of those present vote in favor of such motion, it shall prevail, and the election shall thereupon terminate.

Before and during elections a discussion of the merits of nominees will be in order.

SEC. 6. Every member elected shall accept his membership, personally or in writing, before the close of the next stated meeting after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

FOREIGN ASSOCIATES

SEC. 7. Foreign associates may be nominated by the Council and may be elected at the annual meeting by a two-thirds vote of the members present.

CERTIFICATES OF ELECTION

SEC. 8. A diploma, with the corporate seal of the Academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of membership and to foreign associates on their election.

RESIGNATIONS

SEC. 9. Resignations shall be addressed to the president and acted on by the Academy.

DUES, NONPAYMENT

SEC. 10. Whenever a member has not paid his dues for 4 successive years, the treasurer shall report the fact to the Council, which may report the case to the Academy with the recommendation that the person thus in arrears be declared to have forfeited his membership. If this recommendation be approved by two-thirds of the members present, the said person shall no longer be a member of the Academy, and his name shall be dropped from the roll.

ARTICLE V.—OF SCIENTIFIC COMMUNICATIONS, PUBLICATIONS, AND REPORTS

SCIENTIFIC SESSIONS

SECTION 1. Communications on scientific subjects shall be read at scientific sessions of the Academy, and papers by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

SEC. 2. Any member of the Academy may read a paper from a person who is not a member and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the Council or of the committee on arrangements, or on recommendation by an Academy member and approval by the committee on arrangements.

PUBLICATIONS

SEC. 3. The Academy may provide for the publication, under the direction of the Council, of Proceedings, scientific Memoirs, Biographical Memoirs, and Reports.

PROCEEDINGS

The Proceedings shall be primarily a medium of first publication for original articles, in brief form, of permanent scientific value.

MEMOIRS

The scientific Memoirs shall provide opportunity for the publication of longer and more detailed scientific investigations.

The Biographical Memoirs shall contain an appropriate record of the life and work of the deceased members of the Academy.

ANNUAL REPORT

An annual report shall be presented to Congress by the president and shall contain the annual reports of the treasurer and the auditing committee, a suitable summary of the reports of the committees in charge of trust funds, and a record of the activities of the Academy for the fiscal year immediately preceding, and other appropriate matter. This report shall be presented to Congress by the president after authorization by the Council. It shall also be presented to the Academy at the annual meeting next following.

TREASURER'S REPORT

The treasurer shall prepare a full report of the financial affairs of the Academy at the end of the fiscal year. This report shall be submitted to the Council for approval and afterward presented to the Academy at the next stated meeting. He shall also prepare a supplementary financial statement to December 31 of the ensuing fiscal year for presentation at the annual meeting.

GOVERNMENT REQUESTS

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the Council for approval, except those requested by the Government of the United States which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained.

ARTICLE VI—OF TRUST FUNDS AND THEIR ADMINISTRATION

TRUSTS

SECTION 1. Devises, bequests, donations, or gifts having for their object the promotion of science or the welfare of the Academy may be accepted by the Council for the Academy. Before the acceptance of any such trust the Council shall consider the object of the trust and all conditions or specifications attaching thereto. The Council shall make a report of its action to the Academy.

MEDALS

SEC. 2. Medals and prizes may be established in accordance with the provisions of trusts or by action of the Academy.

TRUST FUND COMMITTEES

SEC. 3. Unless otherwise provided by the deed of gift, the income of each trust fund shall be applied to the objects of that trust by the action of the Academy on the recommendation of a standing committee on that fund.

ARTICLE VII—OF ADDITIONS AND AMENDMENTS

Additions and amendments to the constitution shall be made only at a stated meeting of the Academy. Notice of a proposition for such a change must be submitted to the Council, which may amend the proposition and shall report thereon to the Academy. Its report shall be considered by the Academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated meeting, and if it receives two-thirds of the votes cast it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted, as if the members were present.

2. BYLAWS

[In accordance with a resolution of the Academy, taken at its meeting on April 21, 1915, the bylaws are arranged in groups, and each group is numbered to correspond with the article of the constitution to which it relates.]

I

1. The holders of the medal for eminence in the application of science to the public welfare shall be notified, like members, of the meetings of the Academy and invited to participate in its scientific sessions.

2. A foreign associate of the Academy who becomes a citizen of the United States shall have all the privileges and duties of a member of the Academy unless he shall request otherwise, and shall be included in the list of members in the section of his choice.

II

1. The proper secretary shall acknowledge all donations made to the Academy and shall at once report them to the Council for its consideration.

2. The home secretary shall keep a record of all grants of money or awards of prizes or medals made from trust funds of the Academy. The record for each grant of money shall include the following items: Name of fund, date and number of the grant, name and address of recipient, amount of grant, and date or dates of payment, purpose of grant, record of report of progress, and resulting publications.

3. The executive secretary, who may be a nonmember of the Academy, shall receive a salary to be fixed by the Council.

4. The treasurer shall keep the home secretary informed of all warrants received from directors of trust funds not controlled by the Academy and of the date or dates of payment of all warrants.

GOVERNMENT REQUESTS

5. The treasurer is authorized to defray, when approved by the president, all the proper expenses of committees appointed to make scientific investigations at the request of departments of the Government, and in each case to look to the department requesting the investigation for reimbursement to the Academy.

TREASURER, NATIONAL RESEARCH COUNCIL

6. The treasurer is authorized to act as the treasurer ex officio of the National Research Council.

BURSAR

7. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee and be directly responsible to the treasurer.

INVESTMENTS

8. All investments and reinvestments of either principal or accumulations of income of the trust and other funds of the Academy shall be made by the treasurer, in accordance with the decisions of the finance committee, in the corporate name of the Academy, in the manner and in the securities designated or specified in the instruments creating the several funds, or in the absence of such designation or specification, in bonds of the United States or of the several States, or in bonds or notes secured by first mortgages on real estate, in investments legal for savings banks under the laws of Massachusetts or New York, or in other securities recommended by the financial adviser.

The treasurer may invest the capital of all trust funds of the Academy which are not required by the instruments creating such funds to be kept separate and distinct in a consolidated fund, and shall apportion the income received from such consolidated fund among the various funds composing the same in the proportion that each of said funds shall bear to the total amount of funds so invested:

Provided, however, That the treasurer shall at all times keep accurate accounts showing the amount of each trust fund, the proportion of the income from the consolidated fund to which it is entitled, and the expenses and disbursements properly chargeable to such fund.

The treasurer shall have authority, with the approval of the finance committee, to sell, transfer, convey, and deliver in the corporate name and for the benefit of the Academy any stocks, bonds, or other securities standing in the corporate name.

CUSTODIAN OF SECURITIES

9. On the recommendation of the finance committee, the Council shall contract with a bank, trust company, or corresponding fiduciary institution to serve as the custodian of securities, including all of the Academy's personal property in the form of bonds, mortgages, and other securities, to collect the income from them, to protect the Academy in respect to expirations, reissues, and notifications, and to buy or sell securities on the order of the treasurer, as approved by the finance committee.

CONTRACTS

10. No contract shall be binding upon the Academy which has not been first approved by the Council.

DUES

11. The assessments required for the support of the Academy shall be fixed by the Academy on the recommendation of the Council and shall be payable within the calendar year for which they are assessed.

FINANCE COMMITTEE MEETINGS

12. The finance committee may invite to be present at any of its meetings the chief executive officer of the Research Council, the custodian of buildings and grounds, and the bursar, but they shall not vote.

III

MEETINGS

1. At the business sessions of the Academy the order of procedure shall be as follows:

(1) Chair taken by the president, or, in his absence, by the vice president.
(2) Roll of members called by home secretary (first session of the meeting only)..
(3) Minutes of the preceding session read and approved.
(4) Stated business.
(5) Reports of president, secretaries, treasurer, and committees.
(6) Business from Council.
(7) Other business.

RULES OF ORDER

2. The rules of order of the Academy shall be those of the Senate of the United States, unless otherwise provided by the constitution or bylaws of the Academy.

3. In the absence of any officer, a member shall be chosen to perform his duties temporarily, by a plurality of viva voce votes, upon open nomination.

DEATHS

4. At each meeting the president shall announce the death of any members since the preceding meeting. As soon as practicable thereafter he shall designate a member to write—or to secure from some other source approved by the president—a biographical notice of each deceased member.

COMMITTEE ON ARRANGEMENTS

5. For the annual meeting a committee of five members, appointed for each meeting, and the home secretary shall constitute the committee on arrangements, of which the home secretary shall be chairman. For the autumn meeting a member of the local group shall be chairman of the committee on arrangements, of which the home secretary shall be a member ex officio.

SCIENTIFIC PROGRAM

It shall be the duty of the committee on arrangements to prepare the scientific program for the annual meeting, and for this purpose it shall be empowered to solicit papers from members or others. It shall also be empowered to ascertain the length of time required for reading papers to be presented at the scientific sessions of the Academy and, when it appears advisable, to limit the time to be occupied in their presentation or discussion.

The committee on arrangements shall meet not less than 2 months previous to each meeting. It shall prepare the detailed program of each day and in general shall have charge of all business and scientific arrangements for the meeting for which it is appointed.

PAPERS—TIME LIMIT

6. No paper requiring more than 15 minutes for its presentation shall be accepted unless by invitation of the committee on arrangements.

No speaker shall occupy more than 30 minutes for presentation of papers during the scientific sessions of a single meeting of the Academy, except by invitation of the committee on arrangements.

Time shall not be extended except by vote of the Academy, and then not to exceed 5 minutes. The presiding officer shall warn speakers 2 minutes before the expiration of their time.

The discussion of individual papers shall be limited not to exceed 5 minutes, and the total time for discussion by any one speaker for all scientific sessions in any one meeting shall not exceed 15 minutes, unless approved by the Academy.

In order that adequate opportunity be given for the discussion of papers on the program, the committee on arrangements shall, in making up the program for the scientific sessions, allot not more than 80 percent of the available time of each session to the actual reading of papers.

If the number of papers accepted is too large to be presented in the scientific sessions, provision shall be made for holding two or more sessions simultaneously.

In arranging the program the committee on arrangements shall group the papers as nearly as practicable according to subject.

No paper shall be entered upon the printed program of scientific sessions unless the title is in the hands of the committee on arrangements at least 2 weeks in advance of the meeting. In the event that titles are received later, they shall be placed in order of receipt at the end of the list and read, if there is time. Such supplementary titles shall be conspicuously posted.

IV

SECTIONS

1. The term of service of each chairman of a section shall be 3 years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor, and to report the results of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms.

PROPOSALS FOR NOMINATION

2. (1) Intersectional: Proposals for nomination to membership may be made in writing by any five members of the Academy and addressed to the home secretary; each such proposal shall be accompanied by a record of the scientific activities of the person proposed and by a list of his principal contributions to science, in triplicate; and with a statement as to the sections to which the name proposed shall be submitted for consideration. Such proposals as have been received by the home secretary prior to October 1 shall upon that date be sent by him to the chairman of each section designated, with a copy of the record and list of contributions.

(2) Sectional: Proposals for nomination to membership shall be in writing and shall be sent to the chairman of the section not later than October 1. The proposal for nomination of any individual will be accepted for consideration by the section only if it is accompanied by a list of titles and references of the more important published scientific articles of the individual and by a factual summary, not over 250 words in length, of his accomplishments.

Each section chairman shall edit material thus received and, at the time of the informal ballot, distribute it, together with the material from the home secretary, relative to intersectional proposals, to the members of the section. The home secretary's office, if called upon, will assist the chairmen of the sections in the multigraphing of this material.

Each chairman shall keep a record of the names listed on the informal ballot and shall strike from the lists those names which were on the list in the previous year and received less than two votes on the informal ballot or had been on the list for 3 consecutive years without receiving in any one of these years on the informal ballot so many as one-fourth of the votes cast (counting the votes according to the number of members in the section who vote and not by the number of persons on the list for whom they vote). The home secretary shall keep a record of the votes on the informal ballots in the case of those persons proposed to two or more sections of the Academy and shall cause such names to be stricken from the lists of all sections if in 3 consecutive years there be no two sections in which the number of votes cast for the proposed nominee exceeds one-sixth of the votes cast in those sections except in case the number should be as many as one-fourth of the votes cast in one section, in which case the proposal should be considered thenceforth as a proposal in that section only. No proposal for nomination which is thus stricken from the list of the informal ballot shall be considered by the section (or sections) unless again proposed for nomination in the appropriate manner in a subsequent year.

NOMINATION BALLOTS

3. The chairman of each section of the Academy shall submit to the members of his section, not later than November 1 of each year, an informal ballot containing in alphabetical order and without indications of rank on ballots of the previous year, the names of all those persons who received not less than two votes in the informal ballot of the preceding year and not less than one-fourth of the votes on the informal ballot in at least one of the preceding 3 years in the case of names on the list for 3 years or have been continued on the list by the home secretary or have been added to the list by him or have been newly proposed for consideration in accordance with the procedure above defined. Each member of the section shall be expected to return his ballot to the chairman within 2 weeks, with his signature and with crosses against the names of those persons whom he is prepared to endorse for nomination. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he judges to be worthy of nomination.

In order to secure an adequate number of nominations the chairman, when necessary, shall obtain by personal solicitation a fuller vote of his section or shall submit to the section a supplementary formal ballot.

The chairman shall then certify to the home secretary, prior to January 1, the names of all persons who have been voted for on the formal ballots, together with a statement of the number of votes each candidate received and of the number of members voting. Of these, all persons who receive the votes of two-thirds of the members voting in the section, in cases voted upon by one section only, or the votes of one-half (however distributed) of the members voting in any two sections, in cases voted upon by more than one section, shall be considered nominated.

A properly edited statement of the accomplishments of each individual nominated to the Academy by the sections shall be sent by the section chairmen to the home secretary along with the nominations of the section. These statements, together with summaries pertaining to those persons nominated intersectionally or nominated by the Council, shall be reproduced and distributed to the members of the Academy at the time of the preference ballot.

Persons nominated to the Academy and rejected by the Academy at the ensuing election may not be further considered by the sections until they have again been proposed for nomination in the appropriate manner in a subsequent year. Persons nominated but not voted upon by the Academy shall without further action be presented to the Academy upon the preference ballot of the next following year; but, if again not voted upon, the nominations shall lapse and not be considered except when renewed in the regular order.

ADVISORY COMMITTEE ON MEMBERSHIP

4. Meetings of the advisory committee on membership shall be held immediately following the election of new members of the Academy at the annual meeting. The president of the Academy shall be chairman of the advisory committee on membership.

TEMPORARY NOMINATING GROUPS

Members of the Academy who have been asked to serve on temporary nominating groups by the advisory committee on membership shall retain membership in their respective sections and shall be entitled to vote on the informal and formal ballots of their section.

When a temporary nominating group is organized by the advisory committee on membership, the member of the group who is designated as chairman by the advisory committee on membership shall immediately notify all members of the Academy in that group of their assignment by the advisory committee on membership as members of the group, listing all members of the group in this notification, and shall further transmit to all members of the group the specifications as prepared by the advisory committee on membership, of the special branch of science which the group is to canvass; and shall then obtain from the members of the group, before October 1, proposals of names of persons in that special branch of science to be considered in the election of new members by the Academy. Such proposals shall be submitted to the group by the chairman not later than November 1 for informal ballot. The informal and formal ballots shall be governed by the same rules as ballots of sections; and the chairman shall report to the home secretary the results of the formal ballot of the group under the same rules as apply to sections.

PREFERENCE BALLOT

5. Preference ballots for the election of members shall be sealed in a blank envelope, which shall be enclosed in another bearing the name of the sender, and which shall be addressed to the home secretary, who

shall cause the ballots to be tabulated for use at the election. If in any case it is impossible to determine who cast the ballot, or if the latter contain more or fewer than the number of names provided for in article IV, section 5, of the constitution, the ballot shall be rejected, but minor defects in a ballot shall be disregarded when the intent of the voter is obvious.

6. All discussions of the claims and qualifications of nominees at meetings of the Academy shall be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the Academy at the time of the discussion.

7. Members of the Academy are permitted to choose the section with which they wish to be affiliated, and no one shall be a member of more than one section; but this does not preclude service on a temporary nominating group at the request of the advisory committee on membership.

V

PROCEEDINGS

1. The publication of the Proceedings shall be under the general charge of the Council, which shall have final jurisdiction upon all questions of policy relating thereto.

The National Academy of Sciences and the National Research Council shall cooperate in the publication of the Proceedings, beginning with volume VII.

MEMOIRS

2. Memoirs may be presented at any time to the home secretary, who shall report the date of their reception at the next session; but no Memoir shall be published unless it has been read or presented by title before the Academy.

Before publication all Biographical and scientific Memoirs must be referred to the committee on publication, who may, if they deem best, refer any Memoir to a special committee, appointed by the president, to determine whether the same should be published by the Academy.

3. Memoirs shall date in the records of the Academy from the date of their presentation to the Academy, and the order of their presentation shall be so arranged by the secretary that, so far as may be convenient, those upon kindred topics shall follow one another.

TREASURER'S REPORT

4. The annual report of the treasurer shall contain—

(1) A concise statement of the source, object, and amount of all trust funds of the Academy.

(2) A condensed statement of receipts and expenditures.

(3) A statement of assets and liabilities.

(4) Accounts with individual funds.

(5) Such other matter as he considers appropriate.

AUDITING COMMITTEE

5. The accounts of the treasurer shall, between July 1 and October 1 of each year, be audited under the direction of a committee of three members to be appointed by the president at the annual meeting of

the Academy. It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and the custodian of securities and to compare the stated income of such securities with the receipts of record: to examine all vouchers covering disbursements for account of the Academy, including the National Research Council, and the authority therefor, and to compare them with the treasurer's record of expenditures; to examine and verify the account of the Academy with each trust fund. The auditing committee may employ an expert accountant to assist the committee. The reports of the treasurer and auditing committee shall be presented to the Academy at the autumn meeting and shall be published with that of the president to Congress. They shall be distributed to the members in printed form at the annual meeting.

VI

PROPERTY

1. All apparatus and other materials of permanent value purchased with money from any grant from a trust fund shall be the property of the Academy unless specific exception is made in the grant or by subsequent action of the Council. Receipts for all such property shall be signed by the grantee and shall be forwarded to the home secretary, who shall file them with the custodian of buildings and grounds. All apparatus and unused material of value acquired in this way shall be delivered to the custodian of buildings and grounds on completion of the investigation for which the grant was made, or at any time on demand of the Council, and the custodian of buildings and grounds shall give an appropriate release therefor.

2. A stamp corresponding to the corporate seal of the Academy shall be kept by the secretaries, who shall be responsible for the due markings of all books and other objects to which it is applicable.

Labels or other proper marks of similar device shall be placed upon objects not admitting of the stamp.

3. The fiscal year of the Academy shall end on June 30 of each year.

STANDING COMMITTEES—RESEARCH FUNDS

4. Standing committees of the Academy on trust funds, the income of which is applied to the promotion of research, shall consist of 3 or 5 members. In order to secure rotation in office in such committees, when not in conflict with the provisions of the deeds of gift, the term of service on a committee of 3 members shall be 3 years; on a committee of 5 members the term shall be 5 years.

5. The annual reports of the committees on research funds shall, so far as the Academy has authority to determine their form, give a current number to each award, stating the name, position, and address of the recipient; the subject of research for which the award is made and the sum awarded; and in later annual reports the status of the work accomplished under each award previously made shall be announced, until the research is completed, when announcement of its completion, and, if published, the title and place of publication shall be stated, and the record of the award shall be reported as closed.

VII

AMENDMENTS

1. Any bylaw of the Academy may be amended, suspended, or repealed on the written motion of any two members, signed by them, and presented at a stated meeting of the Academy, provided the same shall be approved by a majority of the members present.

3. ORGANIZATION OF THE ACADEMY

JULY 1, 1945

	Expiration of terms
Jewett, F. B., president	June 30, 1947
Eisenhart, L. P., vice president	June 30, 1949
Cannon, W. B., foreign secretary	June 30, 1946
Wright, F. E., home secretary	June 30, 1947
Hunsaker, J. C., treasurer	June 30, 1948

Kenerson, W. H., executive secretary [1]
Meid, G. D., bursar and business manager [1]

ADDITIONAL MEMBERS OF THE COUNCIL

1943–46:
- Clark, W. M.
- Miles, W. R.

1944–47:
- Goodpasture, E. W.
- Langmuir, Irving

1945–46: Harrison, Ross G.[2]

1945–48:
- Stanley, W. M.
- Tate, John T.

EXECUTIVE COMMITTEE OF THE COUNCIL

- Jewett, F. B., chairman
- Clark, W. M.
- Eisenhart, L. P.
- Harrison, R. G.[2]
- Hunsaker, J. C.
- Stanley, W. M.
- Wright, F. E.

SECTIONS

1. *Mathematics*

- Lefschetz, Solomon, chairman (1946)
- Albert, A. A.
- Alexander, J. W.
- Bateman, Harry
- Bell, E. T.
- Blichfeldt, H. F.
- Bliss, G. A.
- Coble, A. B.
- Eisenhart, L. P.
- Evans, G. C.
- Jackson, Dunham
- Kasner, Edward
- Miller, G. A.
- Moore, R. L.
- Morse, Marston
- Murnaghan, F. D.
- Ritt, J. F.
- Stone, M. H.
- Thomas, T. Y.
- Vandiver, H. S.
- Veblen, Oswald
- von Neumann, J.
- Walsh, J. L.
- Weyl, Hermann
- Whitney, Hassler
- Zariski, Oscar

2. *Astronomy*

- Moulton, F. R., chairman (1947)
- Abbot, C. G.
- Adams, W. S.
- Aitken, R. G.
- Anderson, J. A.
- Babcock, H. D.
- Bowen, I. S.
- Fleming, J. A.
- Hubble, E. P.
- Joy, A. H.
- King, A. S.
- Leuschner, A. O.
- Merrill, P. W.
- Mitchell, S. A.
- Moore, J. H.
- Nicholson, S. B.
- Ross, F. E.
- Russell, H. N.
- Seares, F. H.
- Shapley, Harlow
- Slipher, V. M.
- Stebbins, Joel
- Struve, Otto
- Trumpler, R. J.
- Wright, W. H.

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[1] Not members of the Academy or of the Council of the Academy.

[2] The constitution of the Academy provides that the chief executive officer of the National Research Council be a member of the Council of the Academy and also a member of the executive committee of the Council of the Academy, provided he be a member of the Academy.

3. *Physics*

Kemble, E. C., chairman (1948)
Anderson, C. D.
Beams, J. W.
Bethe, H. A.
Birge, R. T.
Breit, Gregory
Bridgman, P. W.
Coblentz, W. W.
Compton, A. H.
Compton, K. T.
Condon, E. U.
Coolidge, W. D.
Crew, Henry
Davis, Bergen
Davisson, C. J.
Dempster, A. J.
DuBridge, L. A.
Einstein, Albert
Epstein, P. S.
Fermi, Enrico
Franck, James
Houston, W. V.
Hull, A. W.
Ives, H. E.
Lauritsen, C. C.
Lawrence, E. O.
Lyman, Theodore
Mason, Max
Merritt, Ernest
Millikan, R. A.
Mulliken, R. S.
Oppenheimer, J. R.
Pierce, G. W.
Rabi, I. I.
Reichelderfer, F. W.
Rossby, C.-G.
Saunders, F. A.
Slater, J. C.
Slichter, L. B.
Stern, Otto
Stewart, G. W.
Sverdrup, H. U.
Tate, J. T.
Van Vleck, J. H.
Webster, D. L.
Wigner, E. P.
Wilson, E. B.
Wood, R. W.

4. *Engineering*

Jeffries, Zay, chairman (1947)
Adams, C. A.
Briggs, L. J.
Buckley, O. E.
Bush, Vannevar
Cochrane, E. L.
Cottrell, F. G.
Curme, G. O., Jr.
Dryden, H. L.
Dunn, Gano
Durand, W. F.
Fletcher, Harvey
Foote, P. D.
Hoover, Herbert
Hovgaard, William
Hunsaker, J. C.
Jewett, F. B.
Kelly, M. J.
Kettering, C. F.
Lewis, G. W.
Lewis, W. K.
Loomis, A. L.
Merica, P. D.
Slepian, Joseph
Timoshenko, Stephen
von Karman, T.
Whitehead, J. B.
Wright, Orville
Zworykin, V. K.

5. *Chemistry*

Marvel, C. S., chairman (1947)
Adams, L. H.
Adams, Roger
Adkins, Homer
Bachmann, W. E.
Bancroft, W. D.
Baxter, G. P.
Bogert, Marston T.
Bray, W. C.
Conant, J. B.
Eyring, Henry
Fieser, L. F.
Fuson, R. C.
Giauque, W. F.
Gilman, Henry
Gomberg, Moses
Hammett, L. P.
Harkins, W. D.
Hildebrand, J. H.
Hudson, C. S.
Hulett, G. A.
Ipatieff, V. N.
Jacobs, W. A.
Johnson, T. B.
Keyes, F. G.
Kirkwood, J. G.
Kistiakowsky, G. B.
Kraus, C. A.
Lamb, A. B.
La Mer, V. K.
Langmuir, Irving
Latimer, W. M.
Lind, S. C.
MacInnes, D. A.
Noyes, W. A., Jr.
Pauling, Linus
Rodebush, W. H.
Small, L. F.
Smith, L. I.
Tolman, R. C.
Urey, H. C.
Whitney, W. R.
Williams, R. R.
Yost, Don M.

6. *Geology*

Hewett, D. F., chairman (1948)
Allen, E. T.
Berkey, C. P.
Berry, E. W.
Blackwelder, Eliot
Bowen, N. L.
Bowman, Isaiah
Bucher, W. H.
Buddington, A. F.
Chamberlin, R. T.
Cross, Whitman
Daly, R. A.
Day, A. L.
Dunbar, C. O.
Gutenberg, Beno
Kelley, W. P.
Knopf, Adolph
Larsen, E. S., Jr.
Lawson, A. C.
Leith, C. K.
Longwell, C. R.
Macelwane, J. B.
Mead, W. J.
Mendenhall, W. C.
Merriam, J. C.
Palache, Charles
Reeside, J. B., Jr.
Rubey, W. W.
Ruedemann, Rudolf
Scott, W. B.
Simpson, G. G.
Vaughan, T. W.
Willis, Bailey
Wright, F. E.

7. *Botany*

Robbins, W. J., chairman (1947)
Allen, C. E.
Bailey, I. W.
Bailey, L. H.
Beadle, G. W.
Blakeslee, A. F.
Campbell, D. H.
Chandler, W. H.
Cleland, R. E.
Couch, J. N.
Dodge, B. O.
Duggar, B. M.
Emerson, R. A.
Fernald, M. L.
Fred, E. B.
Harper, R. A.
Hoagland, D. R.
Jones, D. F.
Kunkel, L. O.
McClintock, Barbara
Mangelsdorf, P. C.
Merrill, E. D.
Osterhout, W. J. V.
Sax, Karl
Sinnott, E. W.
Stadler, L. J.
Stakman, E. C.
Thom, Charles
van Niel, C. B.
Waksman, S. A.
Walker, J. C.

8. *Zoology and Anatomy*

Corner, G. W., chairman (1946)
Barbour, Thomas
Bigelow, H. B.
Castle, W. E.
Chapman, F. M.
Child, C. M.
Conklin, E. G.
Danforth, C. H.
Detwiler, S. R.
Dobzhansky, Theodosius
Dunn, L. C.
Gregory, W.K.
Harrison, R. G.
Hartman, C. G.
Harvey, E. N.
Herrick, C. J.
Jacobs, M. H.
Jennings, H. S.
Kofoid, C. A.
Lewis, W. H.
Lillie, F. R.
McClung, C. E.
Moore, C. R.
Morgan, T. H.
Muller, H. J.
Painter, T. S.
Parker, G. H.
Patterson, J. T.
Riddle, Oscar
Romer, A. S.
Smith, P. E.
Streeter, G. L.
Sturtevant, A. H.
Sumner, F. B.
Taliaferro, W. H.
Taylor, C. V.
Wetmore, Alexander
Willier, B. H.
Wislocki, G. B.
Woodruff, L. L.
Wright, S. G.

9. *Physiology and Biochemistry*

Van Slyke, D. D., chairman (1948)
Bard, Philip
Bronk, D. W.
Cannon, W. B.
Carlson, A. J.
Clark, W. M.
Clarke, H. T.
Cohn, E. J.
Cori, C. F.
Doisy, E. A.
DuBois, E. F.
du Vigneaud, Vincent
Elvehjem, C. A.
Erlanger, Joseph
Evans, H. M.
Fenn, W. O.
Forbes, Alexander
Gasser, H. S.
Hart, E. B.
Hastings, A. B.
Hecht, Selig
McCollum, E. V.
MacNider, W. deB.
Marshall, E. K., Jr
Maynard, L. A.
Michaelis, Leonor
Northrop, J. H.
Richards, A. N.
Rose, W. C.
Shaffer, P. A.
Sherman, H. C.
Smith, H. W.
Stadie, W. C.
Stanley, W. M.
Vickery, H. B.

10. *Pathology and Bacteriology*

Goodpasture, E. W., chairman (1948)
Addis, Thomas
Armstrong, Charles
Avery, O. T.
Blalock, Alfred
Castle, W. B.
Cole, Rufus
Dochez, A. R.
Dubos, R. J.
Flexner, Simon
Gamble, J. L.
Graham, E. A.
Heidelberger, Michael
Hektoen, Ludvig
Little, C. C.
Loeb, Leo
Longcope, W. T.
Meyer, K. F.
Minot, G. R.
Mueller, J. H.
Murphy, J. B.
Novy, F. G.
Opie, E. L.
Paul, J. R.
Rivers, T. M.
Robertson, O. H.
Rous, Peyton
Sabin, Florence R.
Shope, R. E.
Tyzzer, E. E.
Whipple, G. H.
Wolbach, S. B.

11. *Anthropology and Psychology*

Kidder, A. V., chairman (1947)
Angell, J. R.
Boring, E. G.
Carmichael, Leonard
Dewey, John
Hooton, E. A.
Hull, C. L.
Hunter, W. S.
Kroeber, A. L.
Lashley, K. S.
Linton, Ralph
Lowie, R. H.
Miles, W. R.
Pillsbury, W. B.
Schultz, A. H.
Seashore, C. E.
Stone, C. P.
Stratton, G. M.
Swanton, J. R.
Terman, L. M.
Thorndike, E. L.
Thurstone, L. L.
Tolman, E. C.
Tozzer, A. M.
Wever, E. G.
Wissler, Clark
Woodworth, R. S.
Yerkes, R. M.

TEMPORARY NOMINATING GROUPS

(Designated by the Advisory Committee on Membership)

AGRICULTURAL SCIENCE

E. D. MERRILL, chairman (1948)

Chemistry.—W. H. Rodebush.

Geology.—Eliot Blackwelder, W. P. Kelley.

Botany.—I. W. Bailey, W. H. Chandler, B. M. Duggar, E. B. Fred, D. R. Hoagland, L. O. Kunkel, E. D. Merrill, W. J. Robbins, E. W. Sinnott, E. C. Stakman, C. B. van Niel.

Zoology and anatomy.—W. H. Taliaferro, Sewall Wright.

Physiology and biochemistry.—C. A. Elvehjem, E. B. Hart, L. A. Maynard, W. C. Rose, W. M. Stanley, H. B. Vickery.

Pathology and bacteriology.—R. J. Dubos, R. E. Shope, E. E. Tyzzer.

GEOPHYSICS

J. A. FLEMING, chairman (1948)

Mathematics.—Harry Bateman, F. D. Murnaghan.

Astronomy.—C. G. Abbot, J. A. Fleming, Harlow Shapley.

Physics.—P. W. Bridgman, A. H. Compton, Max Mason, F. W. Reichelderfer, C.-G. Rossby, L. B. Slichter, H. U. Sverdrup.

Engineering.—L. J. Briggs, Vannevar Bush, J. C. Hunsaker, T. von Karman.

Chemistry.—L. H. Adams, S. C. Lind.

Geology.—Isaiah Bowman, A. L. Day, Beno Gutenberg, Adolph Knopf, J. B. Macelwane, T. W. Vaughan, F. E. Wright.

Botany.—S. A. Waksman.

Zoology and anatomy.—H. B. Bigelow, F. R. Lillie.

4. STANDING COMMITTEES OF THE ACADEMY

ADVISORY COMMITTEE ON SCIENTIFIC PUBLICATIONS

(Temporary Joint Committee of the Academy and Research Council)

L. P. Eisenhart, chairman; Gregory Breit, W. M. Clark, Harvey Fletcher, E. B. Fred, G. B. Pegram, H. C. Urey, L. H. Weed, E. G. Wever.

ALBERT NATIONAL PARK

R. M. Yerkes, chairman; F. M. Chapman, Clark Wissler.

AUDITING COMMITTEE

W. C. Mendenhall, chairman; A. L. Day, C. S. Hudson.

BIOGRAPHICAL MEMOIRS

G. L. Streeter, chairman; E. G. Conklin, W. F. Durand, E. L. Thorndike, F. E. Wright.

BUILDINGS AND GROUNDS ADVISORY COMMITTEE (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

G. D. Meid, chairman; R. F. Griggs, R. G. Harrison, A. N. Richards, F. E. Wright.

CALENDAR

F. E. Wright, chairman; Gano Dunn, R. A. Millikan, H. N. Russell.

EXHIBITS (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

F. E. Wright, chairman; W. H. Kenerson, secretary; Harlow Shapley, member-at-large; the chairman of each of the sections of the Academy; the chairman of each of the Divisions of the Research Council.

Executive committee on exhibits

F. E. Wright, chairman; W. H. Kenerson, secretary; A. L. Day, R. G. Harrison, J. C. Merriam.

FINANCE COMMITTEE

The treasurer of the Academy, chairman ex officio (J. C. Hunsaker); the president of the Academy, ex officio (F. B. Jewett); the chairman of the Research Council, ex officio (R. G. Harrison); Isaiah Bowman, Vannevar Bush, W. J. Robbins.

LIBRARY

C. S. Hudson, chairman; W. S. Adams, K. T. Compton, W. D. Harkins, W. H. Kenerson, G. H. Parker, W. B. Scott.

Subcommittee on the library

C. S. Hudson, chairman; W. W. Coblentz, vice chairman; G. L. Streeter, J. R. Swanton.

PAMPHLET ON THE BUILDING

F. E. Wright, chairman; W. H. Kenerson, J. C. Merriam.

PROCEEDINGS, EDITORIAL BOARD (JOINT BOARD OF ACADEMY AND RESEARCH COUNCIL)

W. B. Cannon, W. M. Clark, A. L. Day, L. P. Eisenhart, C. A. Elvehjem, F. M. Feiker, E. W. Goodpasture, R. F. Griggs, R. G. Harrison, F. B. Jewett, A. B. Lamb, E. O. Lawrence, W. R. Miles, W. J. V. Osterhout, W. W. Rubey, F. H. Seares, L. H. Weed, F. E. Wright, Sewall Wright.

PUBLICATIONS OF THE ACADEMY

The president of the Academy, ex officio (F. B. Jewett); the home secretary of the Academy, ex officio (F. E. Wright); E. G. Conklin.

REVISION OF THE CONSTITUTION

E. B. Wilson, chairman; A. L. Day, Gano Dunn, J. C. Merriam, T. H. Morgan.

WEIGHTS, MEASURES, AND COINAGE

Gano Dunn, chairman; G. P. Baxter, R. W. Wood.

5. TRUST FUNDS OF THE ACADEMY

Agassiz Fund

[$50,000]

General uses of the Academy

Alexander Dallas Bache Fund

[$60,000]

Researches in physical and natural science

Board of directors.—E. B. Wilson, chairman; W. J. V. Osterhout, Sewall Wright.

Barnard Medal for Meritorious Service to Science [3]

Discoveries in physical or astronomical science or novel application of science to purposes beneficial to the human race

Committee.—Edwin P. Hubble, chairman; Bergen Davis, A. L. Day, R. C. Tolman, W. R. Whitney.

BARNARD MEDAL AWARDS

Rayleigh, Lord, 1895
Röntgen, Wilhelm Conrad, 1900
Becquerel, Henri, 1905
Rutherford, Baron: Ernest Rutherford, 1909
Bragg, Sir William H., and Bragg, W. L., 1914
Einstein, Albert, 1921
Bohr, Neils, 1925
Heisenberg, Werner, 1930
Hubble, Edwin, 1935
Joliot, F., and Curie, Irène, 1940

Billings Fund

[$23,748.88]

For partial support of the Proceedings or for such other purposes as the Academy may select

John J. Carty Fund

[$25,000]

Medal and monetary award, not oftener than once in every 2 years, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy

Committee.—O. E. Buckley, chairman (1946); Roger Adams (1947), Isaiah Bowman (1948), Vannevar Bush (1950), J. B. Murphy (1949).

JOHN J. CARTY MEDAL AWARDS

Carty, John J., 1932
Wilson, Edmund Beecher, 1936
Bragg, Sir William, 1939
Conklin, Edwin G., 1943
Durand, William Frederick, 1945

Cyrus B. Comstock Fund

[$15,000]

Prize awarded every 5 years for most important discovery or investigation in electricity, magnetism, and radiant energy, or to aid worthy investigations in those subjects

Committee.—C. J. Davisson, chairman (1946); L. A. DuBridge (1950), Vannevar Bush (1949), Gano Dunn (1947), A. L. Loomis, (1948).

COMSTOCK PRIZE AWARDS

Millikan, R. A., 1913
Barnett, S. J., 1918
Duane, William, 1923
Davisson, C. J., 1928
Bridgman, P. W., 1933
Lawrence, E. O., 1938

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[3] Every 5 years the committee recommends the person whom they consider most deserving of the medal, and upon approval by the Academy, the name of the nominee is forwarded to the trustees of Columbia University, who administer the Barnard Medal Fund.

Henry Draper Fund

[$10,000]

Draper medal and investigations in astronomical physics

Committee.—Joel Stebbins, chairman (1948); W. S. Adams (1950), A. S. King (1947), Otto Struve (1949), R. J. Trumpler (1946).

HENRY DRAPER MEDAL AWARDS

Langley, S. P., 1886
Pickering, E. C., 1888
Rowland, H. A., 1890
Vogel, H. K., 1893
Keeler, J. E., 1899
Huggins, Sir Wm., 1901
Hale, George E., 1904
Campbell, W. W., 1906
Abbot, C. G., 1910
Deslandres, H., 1913
Stebbins, Joel, 1915
Michelson, A. A., 1916
Adams, W. S., 1918
Fabry, Charles, 1919
Fowler, Alfred, 1920
Zeeman, Pieter, 1921
Russell, H. N., 1922
Eddington, Sir Arthur Stanley, 1924
Shapley, Harlow, 1926
Wright, William Hammond, 1928
Cannon, Annie Jump, 1931
Slipher, V. M., 1932
Plaskett, John Stanley, 1934
Mees, C. E. Kenneth, 1936
Wood, Robert Williams, 1940
Bowen, Ira Sprague, 1942

Daniel Giraud Elliot Fund

[$8,000]

Medal and honorarium for most meritorious work in zoology or paleontology published each year

Committee.—W. K. Gregroy, chairman; Thomas Barbour, S. R. Detwiler (1947), A. H. Sturtevant.

DANIEL GIRAUD ELLIOT MEDAL AWARDS

Chapman, F. M., 1917
Beebe, William, 1918
Ridgway, Robert, 1919
Abel, Othenio, 1920
Dean, Bashford, 1921
Wheeler, William Morton, 1922
Canu, Ferdinand, 1923
Breuil, Henri, 1924
Wilson, Edmund B., 1925
Stensiö, Erik A.: Son, 1927
Seton, Ernest Thompson, 1928
Osborn, Henry Fairfield, 1929
Coghill, George Ellett, 1930
Black, Davidson, 1931
Chapin, James P., 1932
Lull, Richard Swann, 1933
Painter, Theophilus Shickel, 1934
Colbert, Edwin H., 1935
Murphy, Robert Cushman, 1936
Parker, George Howard, 1937
Irwin, Malcolm Robert, 1938
Northrop, John Howard, 1939
Scott, William Berryman, 1940

Wolcott Gibbs Fund

[$5,545.50]

Chemical research

Board of directors.—G. P. Baxter, chairman; Roger Adams, C. A. Kraus.

Benjamin Apthorp Gould Fund

[$20,000]

Researches in astronomy

Board of directors.—F. R. Moulton, chairman; W. S. Adams, Joel Stebbins.

Marcellus Hartley Fund

[$1,200]

Medal for eminence in the application of science to the public welfare

Committee.—A. R. Dochez, chairman (1947); E. G. Conklin (1948), H. E. Ives (1946), Harlow Shapley (1948), Joseph Slepian (1946), J. T. Tate (1947).

PUBLIC WELFARE MEDAL AWARDS

(In memory of Marcellus Hartley)

Goethals, G. W., 1914
Gorgas, W. C., 1914
Abbe, Cleveland, 1916
Pinchot, Gifford, 1916
Stratton, S. W., 1917
Hoover, Herbert, 1920
Stiles, C. W., 1921
Chapin, Charles V., 1928
Mather, Stephen Tyng, 1930
Rose, Wickliffe, 1931
Park, William Hallock, 1932
Fairchild, David, 1933
Vollmer, August, 1934
Russell, F. F., 1935
Cumming, Hugh S., 1935
Whitney, Willis Rodney, 1937
Hoover, John Edgar, 1939
Rockefeller, John Davison, Jr., 1943

Joseph Henry Fund

[$47,163.50]

To assist meritorious investigators, especially in the direction of original research

Committee.—D. W. Bronk, chairman (1948); R. T. Birge (1949), W. S. Hunter (1950), C. E. McClung (1947), R. C. Tolman (1946).

Marsh Fund

[$20,000]

Original research in the natural sciences

Committee.—W. C. Mendenhall, chairman (1946); W. J. Mead (1949), T. S. Painter (1948), G. G. Simpson (1947), E. W. Sinnott (1950).

Murray Fund

[$10,000]

Agassiz Medal for original contributions in the science of oceanography

Committee.—G. H. Parker, chairman (1946); H. B. Bigelow (1947), T. W. Vaughan (1948).

AGASSIZ MEDAL AWARDS

Hjort, Johan, 1913
Albert I, Prince of Monaco, 1918
Sigsbee, C. D., 1920
Pettersson, Otto Sven, 1924
Bjerknes, Vilhelm, 1926
Weber, Max, 1927
Ekman, Vagn Walfrid, 1928
Gardiner, J. Stanley, 1929
Schmidt, Johannes, 1930
Bigelow Henry Bryant, 1931
Defant, Albert, 1932
Helland-Hansen, Bjorn, 1933
Gran, Haakon Hasberg, 1934
Vaughan, T. Wayland, 1935
Knudsen, Martin, 1936
Allen, Edgar Johnson, 1937
Sverdrup, Harald Ulrik, 1938
Lillie, Frank Rattray, 1939
Iselin, Columbus, II, 1942

George True Nealley Fund

[$19, 555.55]

For the general purposes of the Academy

J. Lawrence Smith Fund

[$10,000]

J. Lawrence Smith medal and investigations of meteoric bodies

Committee: S. A. Mitchell, chairman (1947); L. H. Adams (1949), C. R. Longwell (1948), S. B. Nicholson (1946), V. M. Slipher (1950).

J. LAWRENCE SMITH MEDAL AWARDS

Newton, H. A., 1888
Merrill, George P., 1922

MARY CLARK THOMPSON FUND

[$10,000]

Medal for most important services to geology and paleontology

Committee: W. H. Bucher, chairman (1946); E. Blackwelder (1947); W. J. Mead (1945).

MARY CLARK THOMPSON MEDAL AWARDS

Walcott, Charles Doolittle, 1921
Margerie, Emm. de, 1923
Clarke, John Mason, 1925
Smith, James Perrin, 1928
Scott, William Berryman, 1930
Ulrich, Edward Oscar, 1930
White, David, 1931
Bather, Francis Arthur, 1932
Schuchert, Charles, 1934
Grabau, Amadeus William, 1936
Watson, David Meredith Sears, 1941
Woodward, Sir Arthur Smith, 1942
Berry, Edward Wilber, 1942
Simpson, George Gaylord, 1943
Arkell, William Joscelyn, 1944

CHARLES DOOLITTLE WALCOTT FUND

[$5,000]

For stimulation of research in pre-Cambrian or Cambrian life by award of a medal and honorarium every 5 years

Board of trustees.—Carl O. Dunbar, temporary chairman; Alexander Wetmore (representing the Smithsonian Institution), Pierre Pruvost (representing the Institut de France), O. T. Jones (representing the Royal Society of London), W. H. Bucher.

CHARLES DOOLITTLE WALCOTT MEDAL AWARDS

White, David, 1934
Westergaard, A. H., 1939

JAMES CRAIG WATSON FUND

[$25,000]

Watson medal and the promotion of astronomical research

Trustees.—A. O. Leuschner, chairman; F. E. Ross, F. H. Seares.

WATSON MEDAL AWARDS

Gould, B. A., 1887
Schoenfeld, Ed., 1889
Auwers, Arthur, 1891
Chandler, S. C., 1894
Gill, Sir David, 1899
Kapteyn, J. C., 1913
Leuschner, A. O., 1915
Charlier, C. V. L., 1924
de Sitter, Willem, 1929
Brown, Ernest William, 1936.

CARNEGIE ENDOWMENT FUND

[$3,550,000]

For the purposes of the National Academy of Sciences and National Research Council

NATIONAL SCIENCE FUND

Board of directors

EX OFFICIO

The president of the Academy, Frank B. Jewett
The treasurer of the Academy, Jerome C. Hunsaker
The chairman of the Research Council, Ross G. Harrison
The president of the American Association for the Advancement of Science, C. F. Kettering

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George H. Whipple

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Executive secretary of the National Science Fund: Howland H. Sargeant.

Office of the National Science Fund: 2101 Constitution Avenue, Washington 25, D. C.

6. MEMBERS OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1945

	Elected
Abbot, Charles Greeley, 4604 Haring Lane, Bethesda, Md	1915
Adams, Comfort Avery, the Edward G. Budd Manufacturing Co., Philadelphia 32, Pa	1930
Adams, Leason Heberling, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton St., Washington 8, D. C	1943
Adams, Roger, University of Illinois, Urbana, Ill	1929
Adams, Walter Sydney, Mount Wilson Observatory, Pasadena 4, Calif	1917
Addis, Thomas, Stanford University Medical School, 2398 Sacramento St., San Francisco 15, Calif	1944
Adkins, Homer, 369 Chemistry Bldg., University of Wisconsin, Madison 6, Wis	1942
Aitken, Robert Grant, 1109 Spruce St., Berkeley 7, Calif	1918
Albert, Abraham Adrian, Department of Mathematics, University of Chicago, Chicago 37, Ill	1943
Alexander, James Waddell, 29 Cleveland Lane, Princeton, N. J	1930
Allen, Charles Elmer, Room 103, Biology Bldg., University of Wisconsin, Madison 6, Wis	1924
Allen, Eugene Thomas, The Irvington, 135 Pleasant St., Arlington 74, Mass	1930
Anderson, Carl David, California Institute of Technology, Pasadena 4, Calif	1938
Anderson, John August, Post Office Box 332, Pasadena 17, Calif	1928
Angell, James Rowland, 155 Blake Rd., New Haven 5, Conn	1920
Armstrong, Charles, National Institute of Health, Bethesda 14, Md	1944
Avery, Oswald Theodore, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1933
Babcock, Harold Delos, Mount Wilson Observatory, Pasadena 4, Calif	1933
Bachmann, Werner Emmanuel, University of Michigan, Ann Arbor, Mich	1941
Bailey, Irving Widmer, Biological Laboratories, Harvard University, Cambridge 38, Mass	1929
Bailey, Liberty Hyde, Bailey Hortorium, Ithaca, N. Y	1917
Bancroft, Wilder Dwight, 7 East Ave., Ithaca, N. Y	1920
Barbour, Thomas, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1933
Bard, Philip, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1944
Bateman, Harry, California Institute of Technology, Pasadena 4, Calif	1930
Baxter, Gregory Paul, T. Jefferson Coolidge, Jr., Memorial Laboratory, Cambridge 38, Mass	1916
Beadle, George Wells, Department of Biology, Stanford University, Stanford University, Calif	1944
Beams, Jesse Wakefield, Rouss Physical Laboratory, University of Virginia, Charlottesville, Va	1943
Bell, Eric Temple, California Institute of Technology, Pasadena 4, Calif	1927
Berkey, Charles Peter, Department of Geology, Columbia University, New York 27, N. Y	1927
Berry, Edward Wilber, Johns Hopkins University, Baltimore 18, Md	1922

	Elected
Bethe, Hans Albrecht, Cornell University, Ithaca, N. Y	1944
Bigelow, Henry Bryant, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1931
Birge, Raymond Thayer, University of California, Berkeley 4, Calif	1932
Blackwelder, Eliot, Post Office Box N, Stanford University, Calif	1936
Blakeslee, Albert Francis, Department of Botany, Smith College, Northampton, Mass	1929
Blalock, Alfred, Johns Hopkins Hospital, Baltimore 5, Md	1945
Blichfeldt, Hans Frederick, 520 West Crescent Dr., Palo Alto, Calif	1920
Bliss, Gilbert Ames, Flossmoor, Ill	1916
Bogert, Marston Taylor, 566 Chandler Laboratories, Columbia University, New York 27, N. Y	1916
Boring, Edwin Garrigues, Emerson Hall, Harvard University, Cambridge, 38, Mass	1932
Bowen, Ira Sprague, California Institute of Technology, Pasadena 4, Calif	1936
Bowen, Norman Levi, Rosenwald Hall, University of Chicago, Chicago 37, Ill	1935
Bowman, Isaiah, Johns Hopkins University, Baltimore 18, Md	1930
Bray, William Crowell, Department of Chemistry, University of California, Berkeley 4, Calif	1924
Breit, Gregory, Ballistic Research Laboratory, Aberdeen Proving Ground, Md	1939
Bridgman, Percy Williams, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1918
Briggs, Lyman James, National Bureau of Standards, Washington 25, D. C	1942
Bronk, Detlev Wulf, Johnson Research Foundation, University of Pennsylvania, Philadelphia 4, Pa	1939
Bucher, Walter Hermann, Department of Geology, Columbia University, New York 27, N. Y	1938
Buckley, Oliver Ellsworth, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1937
Buddington, Arthur Francis, Princeton University, Princeton, N. J	1943
Bush, Vannevar, Carnegie Institution of Washington, Washington 5, D. C	1934
Campbell, Douglas Houghton, Stanford University, Stanford University, Calif	1910
Cannon, Walter Bradford, 20 Prescott St., Cambridge 38, Mass	1914
Carlson, Anton Julius, University of Chicago, Chicago 37, Ill	1920
Carmichael, Leonard, Tufts College, Medford 55, Mass	1943
Castle, William Bosworth, Boston City Hospital, Boston 18, Mass	1939
Castle, William Ernest, 421 Spruce St., Berkeley 8, Calif	1915
Chamberlin, Rollin Thomas, University of Chicago, Chicago 37, Ill	1940
Chandler, William Henry, College of Agriculture, University of California, 405 Hilgard Ave., Los Angeles 24, Calif	1943
Chapman, Frank Michler, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1921
Child, Charles Manning, Jordan Hall, Stanford University, Stanford University, Calif	1935
Clark, William Mansfield, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1928
Clarke, Hans Thacher, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1942
Cleland, Ralph Erskine, Indiana University, Bloomington, Ind	1942
Coble, Arthur Byron, University of Illinois, Urbana, Ill	1924
Coblentz, William Weber, National Bureau of Standards, Washington 25, D. C	1930
Cochrane, Edward Lull, Bureau of Ships (T3-1804), Navy Department, Washington 25, D. C	1945
Cohn, Edwin Joseph, Harvard Medical School, Boston 15, Mass	1943
Cole, Rufus, Mount Kisco, N. Y	1922
Compton, Arthur Holly, University of Chicago, Chicago 37, Ill	1927
Compton, Karl Taylor, 111 Memorial Dr., Cambridge 39, Mass	1924
Conant, James Bryant, Harvard University, Cambridge 38, Mass	1929
Condon, Edward Uhler, Westinghouse Research Laboratories, East Pittsburgh, Pa	1944
Conklin, Edwin Grant, Princeton University, Princeton, N. J	1908

	Elected
Coolidge, William David, General Electric Co., Schenectady 5, N. Y	1925
Cori, Carl Ferdinand, School of Medicine, Washington University, St. Louis 10, Mo	1940
Corner, George Washington, Department of Embryology, Carnegie Institution of Washington, Wolfe and Madison Sts., Baltimore 5, Md	1940
Cottrell, Frederick Gardner, 1557 Waverly St., Palo Alto, Calif	1939
Couch, John Nathaniel, University of North Carolina, Chapel Hill, N. C	1943
Crew, Henry, 620 Library Pl., Evanston, Ill	1909
Cross, Charles Whitman, 101 East Kirke St., Chevy Chase 15, Md	1908
Curme, George Oliver, Jr., Carbide & Carbon Chemical Corp., 30 East 42d St., New York 11, N. Y	1944
Daly, Reginald Aldworth, 23 Hawthorn St., Cambridge 38, Mass	1925
Danforth, Charles Haskell, Department of Anatomy, Stanford University, Stanford University, Calif	1942
Davis, Bergen, 44 Morningside Dr., New York 25, N. Y	1929
Davisson, Clinton Joseph, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1929
Day, Arthur Louis, 9113 Old Georgetown Rd., Bethesda 14, Md	1911
Dempster, Arthur Jeffrey, University of Chicago, Chicago 37, Ill	1937
Detwiler, Samuel Randall, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1932
Dewey, John, 1 West 89th St., New York 24, N. Y	1910
Dobzhansky, Theodosius, Department of Zoology, Columbia University, New York 27, N. Y	1943
Dochez, Alphonse Raymond, Columbia University, Presbyterian Hospital, 620 West 168th St., New York 32, N. Y	1933
Dodge, Bernard Ogilvie, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1933
Doisy, Edward Adelbert, St. Louis University School of Medicine, 1402 South Grand Boulevard, St. Louis 4, Mo	1938
Dryden, Hugh Latimer, National Bureau of Standards, Washington 25, D. C	1944
DuBois, Eugene Floyd, Cornell University Medical College, 1300 York Ave, New York 21, N. Y	1933
Dubos, René Jules, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1941
DuBridge, Lee Alvin, Radiation Laboratory, Massachusetts Institute of Technology, Cambridge 39, Mass	1943
Duggar, Benjamin Minge, % Lederlee Laboratories, Inc., Pearl River, N. Y	1927
Dunbar, Carl Owen, Peabody Museum, Yale University, New Haven, Conn	1944
Dunn, Gano, 80 Broad St., New York 4, N. Y	1919
Dunn, Leslie Clarence, Columbia University, New York 27, N. Y	1943
Durand, William Frederick, Stanford University, Stanford University, Calif	1917
du Vigneaud, Vincent, Cornell University Medical College, New York 21, N. Y	1944
Einstein, Albert, the Institute for Advanced Study, Princeton, N. J	1942
Eisenhart, Luther Pfahler, Princeton, N. J	1922
Elvehjem, Conrad Arnold, Department of Biochemistry, University of Wisconsin, Madison 6, Wis	1942
Emerson, Rollins Adams, Cornell University, Ithaca, N. Y	1927
Epstein, Paul Sophus, 1484 Oakdale St., Pasadena 4, Calif	1930
Erlanger, Joseph, Washington University School of Medicine, 4580 Scott Ave., St. Louis 10, Mo	1922
Evans, Griffith Conrad, Department of Mathematics, University of California, Berkeley 4, Calif	1933
Evans, Herbert McLean, Institute of Experimental Biology, University of California, Berkeley 4, Calif	1927
Eyring, Henry, Frick Chemical Laboratory, Princeton University, Princeton, N. J	1945
Fenn, Wallace Osgood, School of Medicine and Dentistry, University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1943
Fermi, Enrico, Department of Physics, Columbia University, New York 27, N. Y	1945

	Elected
Fernald, Merritt Lyndon, Gray Herbarium, Harvard University, Cambridge 38, Mass	1935
Fieser, Louis Frederick, Harvard University, Cambridge 38, Mass	1940
Fleming, John Adam, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd., Washington 15, D. C	1938
Fletcher, Harvey, Bell Telephone Laboratories, Murray Hill, N. J	1935
Flexner, Simon, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1908
Foote, Paul Darwin, Gulf Research & Development Co., Post Office Drawer 2038, Pittsburgh 30, Pa	1943
Forbes, Alexander, 1600 16th St., Washington 9, D. C	1936
Franck, James, University of Chicago, Department of Chemistry, Chicago 37, Ill	1944
Fred, Edwin Broun, University of Wisconsin, Madison 6, Wis	1931
Fuson, Reynold Clayton, 263 Noyes Laboratory, University of Illinois, Urbana, Ill	1944
Gamble, James Lawder, 33 Edge Hill Rd., Brookline, Mass	1945
Gasser, Herbert Spencer, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Giauque, William Francis, University of California, Berkeley 4, Calif	1936
Gilman, Henry, Department of Chemistry, Iowa State College, Ames, Iowa	1945
Gomberg, Moses, University of Michigan, Ann Arbor, Mich	1914
Goodpasture, Ernest William, Vanderbilt University, Nashville 4, Tenn	1937
Graham, Evarts Ambrose, Barnes Hospital, 600 South Kingshighway, St. Louis 10, Mo	1941
Gregory, William King, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1927
Gutenberg, Beno, Seismological Laboratory, 220 North San Rafael Ave., Pasadena 2, Calif	1945
Hammett, Louis Plack, Explosives Research Laboratory, 4800 Forbes St., Pittsburgh 13, Pa	1943
Harkins, William Draper, University of Chicago, Chicago 37, Ill	1921
Harper, Robert Almer, Route 5, Bedford, Va	1911
Harrison, Ross Granville, Osborn Zoological Laboratory, Yale University, New Haven, Conn	1913
Hart, Edwin Bret, Biochemistry Bldg., University of Wisconsin, Madison 6, Wis	1944
Hartman, Carl Gottfried, Department of Zoology, University of Illinois, Urbana, Ill	1937
Harvey, Edmund Newton, Guyot Hall, Princeton University, Princeton, N. J	1934
Hastings, Albert Baird, Department of Biological Chemistry, Harvard University Medical School, Boston 15, Mass	1939
Hecht, Selig, Columbia University, New York 27, N. Y	1944
Heidelberger, Michael, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1942
Hektoen, Ludvig, Chicago Tumor Institute, 21 West Elm St., Chicago 10, Ill	1918
Herrick, Charles Judson, 236 Morningside Dr. SE., Grand Rapids 6, Mich	1918
Hewett, Donnel Foster, U. S. Geological Survey, Washington 25, D. C	1937
Hildebrand, Joel Henry, Gilman Hall, University of California, Berkeley 4, Calif	1929
Hoagland, Dennis Robert, Division of Plant Nutrition, University of California, Berkeley 4, Calif	1934
Hooton, Earnest Albert, Peabody Museum, Harvard University, Cambridge 38, Mass	1935
Hoover, Herbert Clark, Palo Alto, Calif	1922
Houston, William Vermillon, California Institute of Technology, Pasadena 4, Calif	1943
Hovgaard, William, Hotel Margaret, Columbia Heights, Brooklyn 2, N. Y	1929
Hubble, Edwin Powell, Mount Wilson Observatory, Pasadena 4, Calif	1927
Hudson, Claude Silbert, National Institute of Health, Bethesda 14, Md	1927
Hulett, George Augustus, 44 Washington Rd., Princeton, N. J	1922
Hull, Albert Wallace, Research Laboratory, General Electric Co., Schenectady 5, N. Y	1929

	Elected
Hull, Clark Leonard, Institute of Human Relations, Yale University, 333 Cedar St., New Haven, Conn	1936
Hunsaker, Jerome Clark, Massachusetts Institute of Technology, Cambridge 39, Mass	1935
Hunter, Walter Samuel, Brown University, Providence 12, R. I	1935
Ipatieff, Vladimir Nikolaevich, Universal Oil Products Co., Riverside, Ill	1939
Ives, Herbert Eugene, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1933
Jackson, Dunham, University of Minnesota, Minneapolis 14, Minn	1935
Jacobs, Merkel Henry, School of Medicine, University of Pennsylvania, Philadelphia 4, Pa	1939
Jacobs, Walter Abraham, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1932
Jeffries, Zay, General Electric Co., Pittsfield, Mass	1939
Jennings, Herbert Spencer, Department of Zoology, University of California, Los Angeles 24, Calif	1914
Jewett, Frank Baldwin, 350 5th Ave., New York 1, N. Y	1918
Johnson, Treat Baldwin, Bethwood, Amity Rd., Bethany, Rural Free Delivery 1, New Haven, Conn	1919
Jones, Donald Forsha, Box 1106, Department of Genetics, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1939
Joy, Alfred Harrison, Mount Wilson Observatory, Pasadena 4, Calif	1944
Kasner, Edward, Columbia University, New York 27, N. Y	1917
Kelley, Walter Pearson, College of Agriculture, University of California, Berkeley 4, Calif	1943
Kelly, Mervin J., Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1945
Kemble, Edwin Crawford, the Physics Laboratories, Harvard University, Cambridge 38, Mass	1931
Kettering, Charles Franklin, General Motors Corp., Detroit 2, Mich	1928
Keyes, Frederick George, Massachusetts Institute of Technology, Cambridge 39, Mass	1930
Kidder, Alfred Vincent, 10 Frisbie Pl., Cambridge 38, Mass	1936
King, Arthur Scott, Mount Wilson Observatory, Pasadena 4, Calif	1941
Kirkwood, John Gamble, Baker Laboratory, Cornell University, Ithaca, N. Y	1942
Kistiakowsky, George Bogdan, Post Office Box 5370, Los Angeles 55, Calif	1939
Knopf, Adolph, Yale University, New Haven, Conn	1931
Kofoid, Charles Atwood, University of California, Berkeley 4, Calif	1922
Kraus, Charles August, Brown University, Providence 12, R. I	1925
Kroeber, Alfred L., University of California, Berkeley 4, Calif	1928
Kunkel, Louis Otto, Rockefeller Institute for Medical Research, Princeton, N. J	1932
Lamb, Arthur Becket, Chemical Laboratory, Harvard University, Cambridge 38, Mass	1924
LaMer, Victor Kuhn, Department of Chemistry, Columbia University, New York 27, N. Y	1945
Langmuir, Irving, General Electric Co., Schenectady 5, N. Y	1918
Larsen, Esper S., Jr., Geological Museum, Oxford St., Cambridge 38, Mass	1944
Lashley, Karl Spencer, Yerkes Laboratories of Primate Biology, Orange Park, Fla	1930
Latimer, Wendell Mitchell, University of California, Berkeley 4, Calif	1940
Lauritsen, Charles Christian, California Institute of Technology, Pasadena, 4, Calif	1941
Lawrence, Ernest Orlando, Radiation Laboratory, University of California, Berkeley 4, Calif	1934
Lawson, Andrew Cowper, University of California, Berkeley 4, Calif	1924
Lefschetz, Solomon, 129 Broadmead St., Princeton, N. J	1925
Leith, Charles Kenneth, University of Wisconsin, Madison 6, Wis	1920
Leuschner, Armin Otto, 1816 Scenic Ave., Berkeley 4, Calif	1913
Lewis, George W., 1500 New Hampshire Ave. NW., Washington 25, D. C	1945
Lewis, Warren Harmon, the Wistar Institute of Anatomy and Biology, Philadelphia 4, Pa	1936
Lewis, Warren Kendall, Massachusetts Institute of Technology, Cambridge 39, Mass	1938

	Elected
Lillie, Frank Rattray, 5801 Kenwood Ave., Chicago 37, Ill	1915
Lind, Samuel Colville, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1930
Linton, Ralph, Department of Anthropology, Columbia University, New York 27, N. Y	1945
Little, Clarence Cook, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine	1945
Loeb, Leo, 40 Crestwood Dr., St. Louis 5, Mo	1937
Longcope, Warfield Theobald, Johns Hopkins Hospital, Baltimore 5, Md	1943
Longwell, Chester Ray, Kirtland Hall, Yale University, New Haven, Conn	1935
Loomis, Alfred Lee, the Loomis Laboratory, The Tower, Tuxedo Park, N. Y	1941
Lowie, Robert Harry, University of California, Berkeley 4, Calif	1931
Lyman, Theodore, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1917
McClintock, Barbara, Carnegie Institution, Cold Spring Harbor, Long Island, N. Y	1944
McClung, Clarence Erwin, University of Pennsylvania, Philadelphia 4, Pa	1920
McCollum, Elmer Verner, School of Hygiene and Public Health, 615 North Wolfe St., Baltimore 5, Md	1920
MacInnes, Duncan Arthur, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1937
MacNider, William deBerniere, University of North Carolina, Chapel Hill, N. C	1938
Macelwane, James Bernard, S. J., 221 North Grand Blvd., St. Louis 3, Mo	1944
Mangelsdorf, Paul Christoph, Botanical Museum, Harvard University, Cambridge, Mass	1945
Marshall, Eli Kennerly, Jr., School of Medicine, Johns Hopkins University, 710 North Washington St., Baltimore 5, Md	1943
Marvel, Carl Shipp, Department of Chemistry, University of Illinois, Urbana, Ill	1938
Mason, Max, California Institute of Technology, Pasadena 4, Calif	1923
Maynard, Leonard Amby, School of Nutrition, Cornell University, Ithaca, N. Y	1944
Mead, Warren Judson, Massachusetts Institute of Technology, Cambridge 39, Mass	1939
Mendenhall, Walter Curran, 9 East Lenox St., Chevy Chase 15, Md	1932
Merica, Paul Dyer, 67 Wall St., New York 5, N. Y	1942
Merriam, John Campbell, care of Department of Geological Sciences, California Institute of Technology, Pasadena 4, Calif	1918
Merrill, Elmer Drew, Arnold Aboretum, Jamaica Plain, Mass	1923
Merrill, Paul Willard, Mount Wilson Observatory, Pasadena 4, Calif	1929
Merritt, Ernest George, 1 Grove Place, Ithaca, N. Y	1914
Meyer, Karl Friederich, George Williams Hooper Foundation, University of California Medical Center, San Francisco 22, Calif	1940
Michaelis, Leonor, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1943
Miles, Walter Richard, Yale University School of Medicine, 333 Cedar St., New Haven, Conn	1933
Miller, George Abram, 1203 West Illinois St., Urbana, Ill	1921
Millikan, Robert Andrews, California Institute of Technology, Pasadena 4, Calif	1915
Minot, George Richards, Thorndike Memorial Laboratory, Boston City Hospital, Boston 18, Mass	1937
Mitchell, Samuel Alfred, Leander McCormick Observatory, University Station, Charlottesville, Va	1933
Moore, Carl Richard, University of Chicago, Chicago 37, Ill	1944
Moore, Joseph Haines, Lick Observatory, Mount Hamilton, Calif	1931
Moore, Robert Lee, University of Texas, Austin 12, Tex	1931
Morgan, Thomas Hunt, California Institute of Technology, Pasadena 4, Calif	1909
Morse, Harold Marston, Institute for Advanced Study, Princeton, N. J	1932
Moulton, Forest Ray, Smithsonian Institution, Washington 25, D. C	1910
Mueller, John Howard, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1945

	Elected
Muller, Hermann Joseph, Department of Biology, Amherst College, Amherst, Mass	1931
Mulliken, Robert Sanderson, University of Chicago, Chicago 37, Ill	1936
Murnaghan, Francis Dominic, Johns Hopkins University, Baltimore 18, Md	1942
Murphy, James Bumgardner, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1940
Nicholson, Seth Barnes, Mount Wilson Observatory, Pasadena 4, Calif	1937
Northrop, John Howard, Rockefeller Institute for Medical Research, Princeton, N. J	1934
Novy, Frederick George, 721 Forest Ave., Ann Arbor, Mich	1924
Noyes, William Albert, Jr., Department of Chemistry, University of Rochester, Rochester 3, N. Y	1943
Opie, Eugene Lindsay, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1923
Oppenheimer, J. Robert, University of California, Berkeley 4, Calif	1941
Osterhout, Winthrop John Vanleuven, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1919
Painter, Theophilus Shickel, University of Texas, Austin 12, Tex	1938
Palache, Charles, Harvard University, Cambridge 38, Mass	1934
Parker, George Howard, Harvard Biological Laboratories, Divinity Ave., Cambridge 38, Mass	1913
Patterson, John Thomas, University of Texas, Austin 12, Tex	1941
Paul, John Rodman, 789 Howard Ave., New Haven 4, Conn	1945
Pauling, Linus, California Institute of Technology, Pasadena 4, Calif	1933
Pierce, George Washington, Cruft Laboratory, Harvard University, Cambridge 38, Mass	1920
Pillsbury, Walter Bowers, University of Michigan, Ann Arbor, Mich	1925
Rabi, Isidor Isaac, 97 Avon Hill St., Cambridge 20, Mass	1940
Reeside, John Bernard, Jr., Box 177, Hyattsville, Md	1945
Reichelderfer, Francis Wilton, Room 310, U. S. Weather Bureau, Washington 25, D. C	1945
Richards, Alfred Newton, 291 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Pa	1927
Riddle, Oscar, Department of Genetics, Carnegie Institution of Washington, Cold Spring Harbor, Long Island, N. Y	1939
Ritt, Joseph Fels, Columbia University, New York 27, N. Y	1933
Rivers, Thomas Milton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Robbins, William Jacob, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1940
Robertson, Oswald Hope, Department of Medicine, University of Chicago, Chicago 37, Ill	1943
Rodebush, Worth Huff, University of Illinois, Urbana, Ill	1938
Romer, Alfred Sherwood, Museum of Comparative Zoology, Oxford St., Cambridge 38, Mass	1944
Rose, William Cumming, University of Illinois, Urbana, Ill	1936
Ross, Frank Elmore, Mount Wilson Observatory, Pasadena 4, Calif	1930
Rossby, Carl-Gustaf Arvid, Institute of Meteorology, University of Chicago, Chicago 37, Ill	1943
Rous, Francis Peyton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1927
Rubey, William Walden, U. S. Geological Survey, Washington 25, D. C	1945
Ruedemann, Rudolf, 161 Dana Ave., Albany 3, N. Y	1928
Russell, Henry Norris, Princeton University, Princeton, N. J	1918
Sabin, Florence Rena, 1333 East 10th Ave., Denver 3, Colo	1925
Saunders, Frederick Albert, South Hadley, Mass	1925
Sax, Karl, Harvard University, Cambridge 38, Mass	1941
Schultz, Adolph Hans, Johns Hopkins Medical School, Baltimore 5, Md	1939
Scott, William Berryman, Princeton University, Princeton, N. J	1906
Seares, Frederick Hanley, Mount Wilson Observatory, Pasadena 4, Calif	1919
Seashore, Carl Emil, State University of Iowa, Iowa City, Iowa	1922
Shaffer, Philip Anderson, Washington University Medical School, St. Louis 10, Mo	1928
Shapley, Harlow, Harvard College Observatory, Cambridge 38, Mass	1924
Sherman, Henry Clapp, Columbia University, New York 27, N. Y	1933

	Elected
Shope, Richard Edwin, War Disease Control Station, Box 128 (Haute Ville P. O.), Quebec, Quebec, Canada	1940
Simpson, George Gaylord, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1941
Sinnott, Edmund Ware, Osborn Botanical Laboratory, Yale University, New Haven, Conn	1936
Slater, John Clarke, Massachusetts Institute of Technology, Cambridge 39, Mass	1932
Slepian, Joseph, Westinghouse Electric Corporation, East Pittsburgh, Pa	1941
Slichter, Louis Byrne, 212 Astrophysics Bldg., California Institute of Technology, Pasadena 4, Calif	1944
Slipher, Vesto Melvin, Lowell Observatory, Flagstaff, Ariz	1921
Small, Lyndon Frederick, National Institute of Health, Bethesda 14, Md	1941
Smith, Homer William, 477 First Ave., New York 16, N. Y	1945
Smith, Lee Irvin, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1944
Smith, Philip Edward, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1939
Stadie, William Christopher, 821 Maloney Clinic, 36th and Spruce Sts., Philadelphia 4, Pa	1945
Stadler, Lewis John, University of Missouri, Columbia, Mo	1938
Stakman, Elvin Charles, University Farm, St. Paul 8, Minn	1934
Stanley, Wendell Meredith, Rockefeller Institute for Medical Research, Princeton, N. J	1941
Stebbins, Joel, Washburn Observatory, Madison 6, Wis	1920
Stern, Otto, 759 Cragmont Ave., Berkeley, Calif	1945
Stewart, George Walter, State University of Iowa, Iowa City, Iowa	1938
Stone, Calvin Perry, Stanford University, Stanford University, Calif	1943
Stone, Marshall Harvey, Harvard University, Cambridge 38, Mass	1938
Stratton, George Malcolm, University of California, Berkeley 4, Calif	1928
Streeter, George Linius, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1931
Struve, Otto, Yerkes Observatory, Williams Bay, Wis	1937
Sturtevant, Alfred Henry, California Institute of Technology, Pasadena 4, Calif	1930
Sumner, Francis Bertody, Scripps Institution of Oceanography, La Jolla, Calif	1937
Sverdrup, Harald Ulrik, Scripps Institution of Oceanography, La Jolla, Calif	1945
Swanton, John Reed, 22 George St., Newton 58, Mass	1932
Taliaferro, William Hay, University of Chicago, Chicago 37, Ill	1940
Tate, John Torrence, University of Minnesota, Minneapolis 14, Minn	1942
Taylor, Charles Vincent, Stanford University, Stanford University, Calif	1943
Terman, Lewis Madison, 761 Dolores, Stanford University, Calif	1928
Thom, Charles, 207 Grant St., Port Jefferson, N. Y	1937
Thomas, Tracy Yerkes, Swain Hall, Indiana University, Bloomington, Ind	1941
Thorndike, Edward Lee, Teachers College, Columbia University, New York 27, N. Y	1917
Thurstone, Louis Leon, University of Chicago, Chicago 37, Ill	1938
Timoshenko, Stephen Prokop, Room 262, Engineering Bldg., Stanford, University, Calif	1940
Tolman, Edward Chace, Department of Psychology, University of California, Berkeley 4, Calif	1937
Tolman, Richard Chace, California Institute of Technology, Pasadena 4, Calif	1923
Tozzer, Alfred Marston, Peabody Museum, Harvard University, Cambridge 38, Mass	1942
Trumpler, Robert Julius, Berkeley Astronomical Department, University of California, Berkeley 4, Calif	1932
Tyzzer, Ernest Edward, Harvard University Medical School, Boston 15, Mass	1942
Urey, Harold Clayton, Columbia University, New York 27, N. Y	1935
Vandiver, Harry Shultz, University of Texas, Austin 12, Tex	1934

	Elected
van Niel, Cornelis Bernardus, Hopkins Marine Station of Stanford University, Pacific Grove, Calif	1945
Van Slyke, Donald Dexter, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1921
Van Vleck, John Hasbrouck, Harvard University, Cambridge 38, Mass	1935
Vaughan, Thomas Wayland, 3333 P St., Washington 7, D. C	1921
Veblen, Oswald, Institute for Advanced Study, Princeton, N. J	1919
Vickery, Hubert Bradford, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1943
von Karman, Theodore, California Institute of Technology, Pasadena 4, Calif	1938
von Neumann, John, Institute for Advanced Study, Princeton, N. J	1937
Waksman, Selman Abraham, Agricultural Experiment Station, New Brunswick, N. J	1942
Walker, John Charles, 206 Horticulture Bldg., University of Wisconsin, Madison 6, Wis	1945
Walsh, Joseph Leonard, Harvard University, Cambridge 38, Mass	1936
Webster, David Locke, Physics Department, Room 385, Stanford University, Stanford University, Calif	1923
Wetmore, Alexander, Smithsonian Institution, Washington 25, D. C	1945
Wever, Ernest Glen, Princeton University, Princeton, N. J	1940
Weyl, Claus Hugo Hermann, Institute for Advanced Study, Princeton, N. J	1940
Whipple, George Hoyt, School of Medicine of the University of Rochester, 250 Crittenden Blvd., Rochester 7, N. Y	1929
Whitehead, John Boswell, Johns Hopkins University, Baltimore 18, Md	1932
Whitney, Hassler, Sudbury Rd., Weston 93, Mass	1945
Whitney, Willis Rodney, General Electric Co., Schenectady 5, N. Y	1917
Wigner, Eugene Paul, Palmer Physical Laboratory, Princeton, N. J	1945
Williams, Robert R., 297 Summit Ave., Summit, N. J	1945
Willier, Benjamin Harrison, Department of Biology, Johns Hopkins University, Baltimore 18, Md	1945
Willis, Bailey, Box 1365, Stanford University, Calif	1920
Wilson, Edwin Bidwell, 55 Shattuck St., Boston 15, Mass	1919
Wislocki, George Bernays, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1941
Wissler, Clark, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1929
Wolbach, Simeon Burt, Harvard University Medical School, 25 Shattuck St., Boston 15, Mass	1938
Wood, Robert Williams, Johns Hopkins University, Baltimore 18, Md	1912
Woodruff, Lorande Loss, Yale University, New Haven, Conn	1924
Woodworth, Robert Sessions, Columbia University, New York 27, N. Y	1921
Wright, Frederick Eugene, 2134 Wyoming Ave., Washington 8, D. C	1923
Wright, Orville, 15 North Broadway, Dayton 7, Ohio	1936
Wright, Sewall Green, University of Chicago, Chicago 37, Ill	1934
Wright, William Hammond, Lick Observatory, Mount Hamilton, Calif	1922
Yerkes, Robert Mearns, Yale School of Medicine, 333 Cedar St., New Haven, Conn	1923
Yost, Don Merlin, California Institute of Technology, Pasadena 4, Calif	1944
Zariski, Oscar, Johns Hopkins University, Department of Mathematics, Baltimore 18, Md	1944
Zworykin, Vladimir Kosma, RCA Laboratories, Princeton, N. J	1943

MEMBERS EMERITI

Benedict, Francis Gano, Machiasport, Maine	1914
Dickson, Leonard Eugene, University of Chicago, Chicago 37, Ill	1913
Howard, Leland Ossian, Bureau of Entomology, U. S. Department of Agriculture, Washington 25, D. C	1916
Hunt, Reid, 382 Commonwealth Ave., Boston, Mass	1919
Mark, Edward Laurens, 109 Irving St., Cambridge 38, Mass	1903

FOREIGN ASSOCIATES OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1945

	Elected
Adrian, Edgar Douglas, Trinity College, Cambridge, England	1941
Bailey, Sir Edward Battersby, Geological Survey and Museum, Exhibition Rd., London, S. W. 7, England	1944
Barcroft, Sir Joseph, Unit of Animal Physiology, Department of Physiology, The University, Cambridge, England	1939
Bjerknes, V. F. K., University, Oslo, Norway	1934
Bohr, Niels, University of Copenhagen, Copenhagen, Denmark	1925
Bordet, Jules, Pasteur Institute, Rue du Remorqueur, 28, Brussels, Belgium	1935
Bower, Frederick Orpen, 2 the Crescent, Ripon, Yorks, England	1929
Bragg, Sir (William) Lawrence, The University, Cambridge, England	1945
Caso, Alfonso, Instituto Nacional de Anthropologia e Historia, Zacatecas 218, Mexico D. F., Mexico	1943
Dale, Sir Henry Hallett, the Royal Institution, 21 Albermarle St., London, W. 1, England	1940
Debye, Peter, Baker Laboratory, Cornell University, Ithaca, N. Y. (U. S. A.)	1931
Deslandres, Henri, 5 rue de Teheran, Paris 8, France	1913
Einstein, Albert, Institute for Advanced Study, Princeton, N. J. (U. S. A.)	1922
Hadamard, Jacques, 12 rue Emile Faguet, Paris XIV, France	1926
Hardy, Godfrey Harold, Trinity College, Cambridge, England	1927
Hill, Archibald Vivian, 16 Bishopswood Road, Highgate, London, N. 6, England	1941
Hill, James Peter, Kanimbla, Dollis Ave., Finchley, London, N. 3, England	1940
Hopkins, Sir Frederick Gowland, Saxmeadham, 71, Grange Rd., Cambridge, England	1924
Houssay, Bernardo Alberto, Viamonte 2790, Buenos Aires, Argentina	1940
Janet, Pierre, 54, rue de Varenne, Paris, France	1938
Jeffreys, Harold, The University, Cambridge, England	1945
Jones, Sir Harold Spencer, Royal Observatory, Greenwich, England	1943
Karrer, Paul, University of Zurich, Zurich, Switzerland	1945
Keith, Sir Arthur, Buckston Browne Farm, Downe, Farnborough, Kent, England	1941
Krogh, August, Physiological Laboratory, The University, Lund, Sweden	1937
Lacroix, F. Alfred A., 23, rue Jean-Dolent, Paris XIV, France	1920
Levi, Giuseppe, Anatomic Institut, The University, Turin, Italy	1940
Lim, Robert K. S., Chungking, China	1942
Planck, Max, Wangenheimstrasse 21, Berlin-Grunewald, Germany	1926
Robinson, Sir Robert, Dyson Perrins Laboratory, South Parks Road, Oxford, England	1934
Ruzicka, Leopold, Department of Organic Chemistry, Institute of Technology, Zurich, Switzerland	1944
Sherrington, Sir Charles Scott, Gonville and Caius College, Cambridge, England	1924
Sommerfeld, Arnold, Dunant-Str. 6, Munich 23, Germany	1929
Southwell, Richard Vynne, Imperial College of Science and Technology, South Kensington, London, S. W. 7, England	1943
Spearman, Charles Edward, 67 Portland Court, London, W. 1., England	1943
Svedberg, The, Fysikalisk-Kemiska Institutionen, Upsala Universitet, Upsala, Sweden	1945
Taylor, Sir Geoffrey Ingram, Trinity College, Cambridge, England	1945
Thompson, Sir D'Arcy Wentworth, 44 South St., St. Andrews, Fife, Scotland	1943
Vallee-Poussin, C. de la, University of Louvain, Louvain, Belgium	1929
Van der Bijl, Hendrik Johannes, 722 Escom House, Rissik St., Johannesburg, South Africa	1943
Vening Meinesz, Felix Andries, Potgieterlaan 5, Amersfoort, Holland	1939
Watson, David Meredith Seares, 14 Frognal Lane, London, N. W. 3, England	1938
Wieland, Heinrich, Sophienstrasse 9, Munich 2 N. W., Germany	1932

7. MEDALISTS OF THE NATIONAL ACADEMY

	Medal	Year
Abbe, Cleveland [1]	Welfare	1916
Abbot, Charles Greeley	Draper	1910
Abel, Othenio [2]	Elliot	1920
Adams, Walter Sidney	Draper	1918
Albert Ier, Prince of Monaco [1, 2]	Agassiz	1918
Allen, Edgar Johnson [1, 2]	do	1937
Arkell, William Joscelyn [2]	Thompson	1944
Auwers, G. F. J. Arthur [1]	Watson	1891
Barnett, Samuel Jackson [2]	Comstock	1918
Bather, Francis Arthur [1, 2]	Thompson	1932
Becquerel, Henri [1]	Barnard	1905
Beebe, William [2]	Elliot	1918
Berry, Edward Wilber	Thompson	1942
Bigelow, Henry Bryant	Agassiz	1931
Bjerknes, Vilhelm	do	1926
Black, Davidson [1, 2]	Elliot	1931
Bohr, Niels	Barnard	1925
Bowen, Ira Sprague	Draper	1942
Bragg, Sir William Henry [1, 3]	Barnard	1914
Do	Carty	1939
Bragg, W. L.[2, 3]	Barnard	1914
Breuil, Henri [2]	Elliot	1924
Bridgman, P. W	Comstock	1933
Brown, Ernest William [1]	Watson	1936
Campbell, William Wallace [1]	Draper	1906
Cannon, Annie Jump [1, 2]	do	1931
Canu, Ferdinand [1, 2]	Elliot	1923
Carty, John J [1]	Carty	1932
Chandler, Seth Carlo [1]	Watson	1894
Chapin, Charles V.[1, 2]	Welfare	1928
Chapin, James P.[2]	Elliot	1932
Chapman, Frank Michler	do	1917
Charlier, C. V. L.[2]	Watson	1924
Clarke, John Mason [1]	Thompson	1925
Coghill, George Ellett [1]	Elliot	1930
Colbert, Edwin H.[2]	do	1935
Conklin, Edwin Grant	Carty	1943
Cumming, Hugh S.[2]	Welfare	1935
Curie, Iréne [2, 4]	Barnard	1940
Davisson, C. J	Comstock	1928
Dean, Bashford [1, 2]	Elliot	1921
Defant, Albert [2]	Agassiz	1932
de Sitter, Willem [1]	Watson	1929
Deslandres, Henri	Draper	1913
Duane, William [1]	Comstock	1923
Durand, William Frederick	Carty	1945
Eddington, Sir Arthur Stanley.[1]	Draper	1924
Einstein, Albert	Barnard	1921
Ekman, V. Walfrid [2]	Agassiz	1928
Fabry, Charles [2]	Draper	1919
Fairchild, David [2]	Welfare	1933
Fowler, Alfred [1]	Draper	1920
Gardiner, J. Stanley [2]	Agassiz	1929
Gill, Sir David [1]	Watson	1899
Goethals, George Washington.[1, 2]	Welfare	1914
Gorgas, William Crawford [1, 2]	do	1914
Gould, Benjamin Apthorp [1]	Watson	1887
Grabau, Amadeus William [1]	Thompson	1936
Gran, Haakon Hasberg [2]	Agassiz	1934
Hale, George Ellery [1]	Draper	1904
Heisenberg, Werner [2]	Barnard	1930
Helland-Hansen, Bjorn [2]	Agassiz	1933
Hjort, Johan [2]	do	1913
Hoover, Herbert Clark	Welfare	1920
Hoover, John Edgar [2]	do	1939
Hubble, Edwin	Barnard	1935
Huggins, Sir William [1]	Draper	1901
Irwin, Malcolm Robert [2]	Elliot	1938
Iselin, Columbus, II [2]	Agassiz	1942
Joliot, F.[2, 4]	Barnard	1940
Kapteyn, J. C.[1]	Watson	1913
Keeler, James Edward [1]	Draper	1899
Knudsen, Martin [2]	Agassiz	1936
Langley, Samuel Pierpont [1]	Draper	1886
Lawrence, Ernest Orlando	Comstock	1938
Leuschner, Armin Otto	Watson	1915
Lillie, Frank Rattray	Agassiz	1939
Lull, Richard Swann [2]	Elliot	1933
Margerie, Emmanuel de [2]	Thompson	1923
Mather, Stephen Tyng [1, 2]	Welfare	1930
Mees, C. E. Kenneth [2]	Draper	1936
Merrill, George Perkins [1]	Smith	1922
Michelson, Albert Abraham [1]	Draper	1916
Millikan, Robert Andrews	Comstock	1913
Murphy, Robert Cushman [2]	Elliot	1936
Newton, Hubert Anson [1]	Smith	1888
Northrop, John Howard	Elliot	1939
Osborn, Henry Fairfield [1]	do	1929
Painter, Theophilus Shickel	do	1934
Park, William Hallock [1, 2]	Welfare	1932
Parker, George Howard	Elliot	1937
Pettersson, Otto Sven [1, 2]	Agassiz	1924
Pickering, Edward Charles [1]	Draper	1888
Pinchot, Gifford [2]	Welfare	1916
Plaskett, John Stanley [1, 2]	Draper	1934
Rayleigh, Lord [1]	Barnard	1895
Ridgway, Robert [1]	Elliot	1919
Rockefeller, John Davison, Jr.[2]	Welfare	1943
Röntgen, Wilhelm Conrad [1, 2]	Barnard	1900
Rose, Wickliffe [1, 2]	Welfare	1931
Rowland, Henry Augustus [1]	Draper	1890
Russell, F. F.[2]	Welfare	1935
Russell, Henry Norris	Draper	1922
Rutherford, Baron: Ernest Rutherford.[1]	Barnard	1909
Schmidt, Johannes [1, 2]	Agassiz	1930
Schoenfeld, Ed. [1, 2]	Watson	1889
Schuchert, Charles [1]	Thompson	1934
Scott, William Berryman	do	1930
Do	Elliot	1940
Seton, Ernest Thompson [2]	do	1928
Shapley, Harlow	Draper	1926
Sigsbee, Rear Adm. Charles Dwight, U. S. Navy.[1, 2]	Agassiz	1920
Simpson, George Gaylord	Thompson	1943
Slipher, V. M	Draper	1932
Smith, James Perrin [1]	Thompson	1928
Stebbins, Joel	Draper	1915
Stensiö, Erik A.: Son [2]	Elliot	1927
Stiles, Charles Wardell [1, 2]	Welfare	1921
Stratton, Samuel Wesley [1]	do	1917
Sverdrup, Harald Ulrik [2]	Agassiz	1938
Ulrich, Edward Oscar [1]	Thompson	1930
Vaughan, T. Wayland	Agassiz	1935
Vogel, Herman Karl [1]	Draper	1893
Vollmer, August [2]	Welfare	1934
Walcott, Charles Doolittle [1]	Thompson	1921
Watson, David Meredith Seares.	do	1941
Weber, Max [1, 2]	Agassiz	1927
Westergaard, A. H. [1, 2]	Walcott	1939
Wheeler, William Morton [1]	Elliot	1922
White, David [1]	Thompson	1931
Do	Walcott	1934
Whitney, Willis Rodney	Welfare	1937
Wilson, Edmund Beecher [1]	Elliot	1925
Do	Carty	1936
Wood, Robert Williams	Draper	1940
Woodward, Sir Arthur Smith.[1, 2]	Thompson	1942
Wright, William Hammond	Draper	1928
Zeeman, P.[1]	do	1921

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[1] Deceased.
[2] Not member or foreign associate of the Academy.
[3] Joint award to Sir William Bragg and W. L. Bragg.
[4] Joint award to Iréne Curie and F. Joliot.

8. PRESIDENTS OF THE ACADEMY

Alexander Dallas Bache	1863–67	William Henry Welch	1913–17
Joseph Henry	1868–78	Charles Doolittle Walcott	1917–23
William Barton Rogers	1879–82	Albert Abraham Michelson	1923–27
Othniel Charles Marsh	1883–95	Thomas Hunt Morgan	1927–31
Wolcott Gibbs	1895–1900	William Wallace Campbell	1931–35
Alexander Agassiz	1901–07	Frank Rattray Lillie	1935–39
Ira Remsen	1907–13	Frank Baldwin Jewett	1939–

9. DECEASED MEMBERS AND FOREIGN ASSOCIATES

DECEASED MEMBERS

	Date of election	Date of death		Date of election	Date of death
Abbe, Cleveland	1878	Oct. 28, 1916	Clarke, John M	1909	May 29, 1925
Abbot, Henry L	1872	Oct. 1, 1927	Clinton, George Perkins	1930	Aug. 13, 1937
Abel, John Jacob	1912[1]	May 26, 1938	Coffin, James H	1869	Feb. 6, 1873
Agassiz, Alexander	1866	Mar. 27, 1910	Coffin, J. H. C	(2)	Jan. 8, 1890
Agassiz, Louis	(2)	Dec. 14, 1873	Coghill, George Ellett	1935	July 23, 1941
Alexander, J. H	(2)	Mar. 2, 1867	Comstock, Cyrus B	1884	May 29, 1910
Alexander, Stephen	(2)	June 25, 1883	Comstock, George C	1899	May 11, 1934
Allen, J. A	1876	Aug. 29, 1921	Cook, George H	1887	Sept. 22, 1889
Ames, Joseph Sweetman[3]	1909	June 24, 1943	Cooke, Josiah P	1872	Sept. 3, 1894
Armsby, H. P	1920	Oct. 19, 1921	Cope, Edward D	1872	Apr. 12, 1897
Atkinson, George Francis	1918[1]	Nov. 14, 1918	Coues, Elliott	1877	Dec. 25, 1899
Bache, Alexander Dallas	(2)	Feb. 14, 1867	Coulter, John Merle	1909	Dec. 23, 1928
Baekeland, Leo Henrik	1936[1]	Feb. 23, 1944	Councilman, William T.[4]	1904	May 27, 1933
Bailey, Solon Irving	1923	June 5, 1931	Crafts, James M	1872	June 21, 1917
Baird, Spencer F	1864	Aug. 19, 1887	Curtis, Heber Doust	1919	Jan. 9, 1942
Barker, George F	1876[1]	May 24, 1910	Cushing, Harvey (Williams)	1917	Oct. 7, 1939
Barnard, E. E	1911	Feb. 6, 1923	Dall, William H	1897[1]	Mar. 27, 1927
Barnard, F. A. P	(2)	Apr. 27, 1889	Dalton, J. C	1864	Feb. 2, 1889
Barnard, J. G	(2)	May 4, 1882	Dana, E. S	1884	June 16, 1935
Barrell, Joseph	1919	May 4, 1919	Dana, James D	(2)	Apr. 14, 1895
Bartlett, W. H. C	(2)	Feb. 11, 1893	Davenport, Charles Benedict	1912[1]	Feb. 18, 1944
Barus, Carl	1892	Sept. 28, 1935	Davidson, George	1874	Dec. 2, 1911
Becker, George Ferdinand	1901	Apr. 20, 1919	Davis, Charles H	(2)	Feb. 18, 1877
Beecher, Charles Emerson	1899	Feb. 14, 1904	Davis, William M	1904	Feb. 5, 1934
Bell, A. Graham	1883	Aug. 2, 1922	Dodge, Raymond[5]	1924[1]	Apr. 8, 1942
Benedict, Stanley Rossiter	1924[1]	Dec. 21, 1936	Donaldson, Henry Herbert	1914	Jan. 24, 1938
Billings, John S	1883	Mar. 11, 1913	Draper, Henry	1877	Nov. 20, 1882
Birkhoff, George David	1918[1]	Nov. 12, 1944	Draper, John W	1877	Jan. 4, 1882
Boas, Franz	1900[1]	Dec. 21, 1942	Duane, William	1920	Mar. 7, 1935
Bocher, Maxime	1909[1]	Sept. 12, 1918	Dutton, C. E	1884[1]	Jan. 4, 1912
Boltwood, B. B	1911	Aug. 14, 1927	Eads, James B	1872	Mar. 8, 1887
Boss, Lewis	1889	Oct. 5, 1912	East, Edward Murray	1925	Nov. 9, 1938
Bowditch, Henry P	1887	Mar. 13, 1911	Edison, Thomas A	1927	Oct. 18, 1931
Bowie, William	1927[1]	Aug. 28, 1940	Eigenmann, Carl H	1923	Apr. 24, 1927
Branner, J. C	1905	Mar. 1, 1922	Elkin, W. L	1895	May 30, 1933
Breasted, James Henry	1923	Dec. 2, 1935	Emmet, William LeRoy	1921	Sept. 26, 1941
Brewer, William H	1880	Nov. 2, 1910	Emmons, Samuel F	1892	Mar. 28, 1911
Bridges, Calvin Blackman	1937	Dec. 27, 1938	Englemann, George	(2)	Feb. 4, 1884
Britton, Nathaniel L	1914	June 25, 1934	Ewing, James	1935[1]	May 16, 1943
Brooks, William Keith	1884	Nov. 12, 1908	Farlow, W. G	1879	June 3, 1919
Brown, Ernest William	1923	July 22, 1938	Ferrell, William	1868	Sept. 18, 1891
Brown-Sequard, Charles E	1868	Apr. 2, 1894	Fewkes, Jesse Walter	1914	May 31, 1930
Brush, George Jarvis	1868	Feb. 6, 1912	Folin, Otto	1916[1]	Oct. 25, 1934
Bumstead, Henry A	1913	Dec. 31, 1920	Forbes, Stephen Alfred	1918	Mar. 13, 1930
Burgess, George K	1922[1]	July 2, 1932	Franklin, E. C	1914[1]	Feb. 4, 1937
Calkins, Gary Nathan	1919[1]	Jan. 4, 1943	Frazer, John Fries	(2)	Oct. 12, 1872
Campbell, William Wallace	1902[1]	June 14, 1938	Freeman, John R	1918	Oct. 6, 1932
Carothers, Wallace H	1936	Apr. 29, 1937	Frost, Edwin Brant	1908	May 14, 1935
Carty, John J	1917	Dec. 27, 1932	Gabb, William M	1876	May 30, 1878
Casey, Thomas L	1890	Mar. 25, 1896	Gay, Frederick Parker	1939[1]	July 14, 1939
Caswell, Alexis	(2)	Jan. 8, 1877	Genth, F. A	1872	Feb. 2, 1893
Cattell, James McKeen	1901[1]	Jan. 20, 1944	Gherardi, Bancroft	1933[1]	Aug. 14, 1941
Chamberlin, Thomas Chrowder	1903	Nov. 15, 1928	Gibbs, Josiah Willard	1879	Apr. 28, 1903
Chandler, Charles Frederick	1874	Aug. 25, 1925	Gibbs, Wolcott	(2)	Dec. 9, 1908
Chandler, Seth Carlo	1888[1]	Dec. 31, 1913	Gilbert, Grove Karl	1883	May 1, 1918
Chauvenet, William	(2)	Dec. 13, 1877	Gill, Theodore Nicholas	1873	Sept. 25, 1914
Chittenden, Russell Henry	1890	Dec. 26, 1943	Gilliss, James Melville	(2)	Feb. 9, 1865
Clark, Henry James	1872	July 1, 1879	Gooch, Frank Austin	1897	Aug. 12, 1929
Clark, William B	1908	July 27, 1913	Goodale, G. L	1890	Apr. 15, 1923
Clarke, Frank Wigglesworth	1909	May 23, 1931	Goode, G. Brown	1888	Sept. 6, 1896
			Gortner, Ross Aiken	1935	Sept. 30, 1942

See footnotes at end of table, p. 124.

DECEASED MEMBERS—continued

	Date of election	Date of death
Gould, Augustus A	(2)	Sept. 15, 1866
Gould, Benjamin A	(2)	Nov. 26, 1896
Gray, Asa	(2)	Jan. 30, 1888
Guyot, Arnold	(2)	Feb. 8, 1884
Hadley, James	1872	Nov. 14, 1872
Hague, Arnold	1885	May 15, 1917
Haldeman, S. S	1876	Sept. 20, 1880
Hale, George Ellery	1902	Feb. 21, 1938
Hall, Asaph	1875	Nov. 22, 1907
Hall, Edwin Herbert	1911	Nov. 20, 1938
Hall, G. Stanley	1915	Apr. 24, 1924
Hall, James	(2)	Aug. 7, 1898
Halsted, W. S	1917	Sept. 7, 1922
Hastings, C. S	1889	Jan. 29, 1932
Hayden, F. V	1873	Dec. 22, 1887
Hayford, John F	1911	Mar. 10, 1925
Henderson, Lawrence Joseph	1919	Feb. 10, 1942
Henderson, Yandell	1923 [1]	Feb. 18, 1944
Henry, Joseph	(2)	May 13, 1878
Hibbert, Harold	1945 [1]	May 13, 1945
Hilgard, Eugene W	1872	Jan. 8, 1916
Hilgard, Julius E	(2)	May 9, 1890
Hill, George William	1874	Apr. 16, 1914
Hill, Henry B	1883	Apr. 6, 1903
Hillebrand, W. F	1908	Feb. 7, 1925
Hitchcock, Edward	(2)	Feb. 27, 1864
Holbrook, J. E	1868	Sept. 8, 1871
Holden, Edward Singleton	1885	Mar. 16, 1914
Holmes, William H.[6]	1905	Apr. 20, 1933
Howe, H. M	1917	May 14, 1922
Howe, Marshall Avery	1923	Dec. 24, 1936
Howell, William Henry	1905 [1]	Feb. 6, 1945
Hrdlička, Aleš	1921	Sept. 5, 1943
Hubbard, J. S	(2)	Aug. 16, 1863
Humphreys, A. A	(2)	Dec. 27, 1883
Hunt, T. Sterry	1873	Feb. 12, 1892
Huntington, G. S	1924	Jan. 5, 1927
Hyatt, Alpheus	1875	Jan. 15, 1902
Iddings, Joseph P	1907 [1]	Sept. 8, 1920
Jackson, Charles Loring [7]	1883 [1]	Oct. 28, 1935
James, William [8]	1903 [1]	Aug. 26, 1910
Johnson, Douglas Wilson	1932 [1]	Feb. 24, 1944
Johnson, S. W	1866	July 21, 1909
Jones, Lewis Ralph	1920 [1]	Apr. 1, 1945
Jones, Walter	1918	Feb. 28, 1935
Jordan, Edwin Oakes	1936	Sept. 2, 1936
Keeler, J. E	1900	Aug. 12, 1900
Keith, Arthur	1928 [1]	Feb. 7, 1944
Kellogg, Vernon Lyman	1930	Aug. 8, 1937
Kemp, James F	1911	Nov. 17, 1926
Kennelly, Arthur Edwin	1921	June 18, 1939
King, Clarence	1876	Dec. 24, 1901
Kirtland, Jared P	1865	Dec. 10, 1877
Kohler, Elmer Peter	1920 [1]	May 24, 1938
Landsteiner, Karl	1932 [1]	June 26, 1943
Lane, J. Homer	1872	May 3, 1880
Langley, Samuel P	1876	Feb. 27, 1906
Laufer, Berthold	1930	Sept. 13, 1934
Lea, Matthew Carey	1892	Mar. 15, 1897
Le Conte, John	1878	Apr. 29, 1891
Le Conte, John L	(2)	Nov. 15, 1883
Le Conte, Joseph	1875	July 6, 1901
Leidy, Joseph	(2)	Apr. 30, 1891
Lesley, J. Peter	(2)	June 1, 1903
Lesquereux, Leo	1864	Oct. 25, 1889
Levene, Phoebus Aaron Theodor	1916	Sept. 6, 1940
Leverett, Frank	1929	Nov. 15, 1943
Lindgren, Waldemar	1909 [1]	Nov. 4, 1939
Loeb, Jacques	1910	Feb. 12, 1924
Longstreth, Miers F	(2)	Dec. 27, 1891
Loomis, Elias	1873	Aug. 15, 1889
Lovering, Joseph	1873	Jan. 18, 1892
Lusk, Graham	1915	July 18, 1932
Lyman, Theodore	1872	Sept. 9, 1897
MacCallum, William George [9]	1921	Feb. 3, 1944
Mahan, D. H	(2)	Sept. 16, 1871
Mall, Franklin P	1907	Nov. 17, 1917
Marsh, G. P	1866	July 23, 1882
Marsh, O. C	1874	Mar. 18, 1899
Mayer, Alfred M	1872	July 13, 1897
Mayor, A. G	1916	June 25, 1922
Mayo-Smith, Richmond	1890	Nov. 11, 1901
Meek, F. B	1869	Dec. 21, 1876
Meigs, M. C	1865	Jan. 2, 1892
Meltzer, Samuel James	1912	Nov. 8, 1920
Mendel, Lafayette B.[10]	1913	Dec. 9, 1935
Mendenhall, Charles Elwood	1918	Aug. 18, 1935
Mendenhall, T. C	1887	Mar. 22, 1924
Merriam, Clinton Hart	1902	Mar. 19, 1942
Merrill, George Perkins	1922	Aug. 15, 1929
Michael, Arthur	1889 [1]	Feb. 8, 1942
Michelson, A. A	1888	May 9, 1931
Midgley, Thomas, Jr	1942 [1]	Nov. 2, 1944
Miller, Dayton Clarence	1921	Feb. 22, 1941
Minot, Charles Sedgwick	1897	Nov. 19, 1914
Mitchell, Henry	1885	Dec. 1, 1902
Mitchell, Silas Weir	1865 [1]	Jan. 4, 1914
Modjeski, Ralph	1925	June 26, 1940
Moore, E. H	1901	Dec. 30, 1932
Morgan, Lewis H	1875	Dec. 17, 1881
Morley, E. W	1897	Feb. 24, 1923
Morse, Edward Sylvester	1876	Dec. 20, 1925
Morse, Harmon N	1907	Sept. 8, 1920
Morton, Henry	1874	May 9, 1902
Nef, John Ulric	1904 [1]	Aug. 13, 1915
Newberry, J. S	(2)	Dec. 7, 1892
Newcomb, Simon	1869	July 11, 1909
Newton, H. A	(2)	Aug. 12, 1896
Newton, John	1876	May 1, 1895
Nichols, Edward Leamington	1901	Nov. 10, 1937
Nichols, Ernest Fox	1908	Apr. 29, 1924
Norris, James Flack	1934 [1]	Aug. 3, 1940
Norton, William A	1873	Sept. 21, 1883
Noyes, Arthur Amos	1905 [1]	June 3, 1936
Noyes, William Albert	1910 [1]	Oct. 24, 1941
Oliver, James E	1872	Mar. 27, 1895
Osborn, Henry Fairfield	1900	Nov. 6, 1935
Osborne, Thomas Burr	1910	Jan. 29, 1929
Osgood, William Fogg	1904 [1]	July 22, 1943
Packard, A. S	1872	Feb. 14, 1900
Pearl, Raymond	1916	Nov. 17, 1940
Peirce, Benjamin [11]	(1 2)	Oct. 6, 1880
Peirce, Benjamin Osgood	1906	Jan. 14, 1915
Peirce, Charles S. S	1876 [1]	Apr. 20, 1914
Penfield, Samuel L	1900	Aug. 13, 1904
Peters, C. H. F	1876 [1]	July 18, 1890
Pickering, Edward C	1873	Feb. 3, 1919
Pirsson, Louis V	1913 [1]	Dec. 8, 1919
Pourtales, L. F	1873	July 19, 1880
Powell, John W	1880	Sept. 23, 1902
Power, Frederick B	1924 [1]	Mar. 26, 1927
Prudden, T. Mitchell	1901	Apr. 10, 1924
Pumpelly, Raphael	1872	Aug. 10, 1923
Pupin, Michael Idvorsky	1905	Mar. 12, 1935
Putnam, Frederic W	1885	Aug. 18, 1915
Ransome, F. L	1914	Oct. 6, 1935
Ranson, Stephen Walter	1940	Aug. 30, 1942
Reid, Harry Fielding	1912 [1]	June 18, 1944
Remsen, Ira	1882	Mar. 4, 1927
Richards, T. W	1899 [1]	Apr. 2, 1928
Richtmyer, Floyd Karker	1932	Nov. 7, 1939
Ridgway, Robert	1917	Mar. 25, 1929
Robinson, B. L	1921	July 27, 1935
Rodgers, John	(2)	May 5, 1882
Rogers, Fairman	(2)	Aug. 22, 1900
Rogers, Robert E.[12]	(2)	Sept. 6, 1884
Rogers, William A	1885	Mar. 1, 1898
Rogers, William B.[12]	(2)	May 30, 1882
Rood, Ogden N	1865	Nov. 12, 1902
Rosa, E. B	1913	May 17, 1921
Rowland, Henry A	1881	Apr. 16, 1901
Royce, Josiah	1906 [1]	Sept. 14, 1916
Rutherfurd, Lewis M	(2)	May 30, 1892
Ryan, Harris Joseph	1920	July 3, 1934
Sabine, Wallace C. W	1917	Jan. 10, 1919

See footnotes at end of table, p. 124.

DECEASED MEMBERS—continued

	Date of election	Date of death		Date of election	Date of death
St. John, Charles Edward	1924	Apr. 26, 1935	Trowbridge, William P	1872	Aug. 12, 1892
Sapir, Edward	1934 [1]	Feb. 4, 1939	Trumbull, James H	1872	Aug. 5, 1897
Sargent, Charles S	1895	Mar. 22, 1927	Tuckerman, Edward	1868	Mar. 15, 1886
Sauveur, Albert	1927	Jan. 26, 1939	Ulrich, Edward Oscar	1917 [1]	Feb. 22, 1944
Saxton, Joseph	(2)	Oct. 26, 1873	Van Hise, C. R	1902	Nov. 19, 1918
Schlesinger, Frank	1916 [1]	July 10, 1943	Van Vleck, Edward Burr	1911 [1]	June 3, 1943
Schott, Charles A	1872	July 31, 1901	Vaughan, Victor Clarence	1915 [1]	Nov. 21, 1929
Schuchert, Charles	1910 [1]	Nov. 20, 1942	Verrill, Addison E.[13]	1872	Dec. 10, 1926
Scudder, Samuel H	1877	May 17, 1911	Walcott, Charles D	1896 [1]	Feb. 9, 1927
Sellers, William	1873 [1]	Jan. 24, 1905	Walker, Francis A	1878	Jan. 5, 1897
Setchell, William Albert	1919	Apr. 4, 1943	Warren, G. K	1876	Aug. 8, 1882
Silliman, Benjamin, Sr	(2)	Nov. 24, 1864	Washburn, E. W	1932	Feb. 6, 1934
Silliman, Benjamin, Jr	(2)	Jan. 14, 1885	Washburn, Margaret Floy[16]	1931 [1]	Oct. 29, 1939
Smith, Alexander	1915	Sept. 8, 1922	Washington, H. S	1921 [1]	Jan. 7, 1934
Smith, Edgar F	1899	May 3, 1928	Watson, James C	1868	Nov. 23, 1880
Smith, Erwin F	1913	Apr. 6, 1927	Watson, Sereno	1889	Mar. 9, 1892
Smith, J. Lawrence	1872	Oct. 12, 1883	Webster, A. G	1903	May 15, 1923
Smith, James Perrin	1925 [1]	Jan. 1, 1931	Welch, William H	1895	Apr. 30, 1934
Smith, Sidney Irving [14]	1884	May 6, 1926	Wells, Harry Gideon	1925 [1]	Apr. 26, 1943
Smith, Theobald	1908	Dec. 10, 1934	Wells, Horace L	1903	Dec. 19, 1924
Sperry, Elmer A	1925 [1]	June 16, 1930	Wheeler, Henry Lord	1909 [1]	Oct. 30, 1914
Squier, George O	1919	Mar. 24, 1934	Wheeler, William Morton	1912	Apr. 19, 1937
Stejneger, Leonhard	1923 [1]	Feb. 28, 1943	White, Charles A	1889	June 29, 1910
Stieglitz, Juilius Oscar	1911	Jan. 10, 1937	White, David	1912	Feb. 7, 1935
Stillwell, Lewis Buckley	1921 [1]	Jan. 19, 1941	White, Henry Seely	1915 [1]	May 20, 1943
Stimpson, William	1868	May 26, 1872	Whitman, C. O	1895	Dec. 6, 1910
Stockard, Charles Rupert	1922 [1]	Apr. 7, 1939	Whitney, Josiah D.[11]	(2)	Aug. 19, 1896
Story, William Edward	1908 [1]	Apr. 11, 1930	Whitney, William D.[11]	1865 [1]	June 29, 1894
Stratton, S. W	1917	Oct. 18, 1931	Wilczynski, E. J.[17]	1919	Sept. 14, 1932
Strong, Theodore	(2)	Feb. 1, 1869	Williston, Samuel W	1915	Aug. 30, 1918
Sullivant, W. S	1872	Apr. 30, 1873	Wilson, Edmund Beecher	1899	Mar. 3, 1939
Swain, George F	1923	July 1, 1931	Wilson, Henry Van Peters	1927 [1]	Jan. 4, 1939
Swasey, Ambrose	1922	June 15, 1937	Winlock, Joseph	(2)	June 11, 1875
Taylor, David Watson	1918	July 28, 1940	Wood, Horatio C	1879 [1]	Jan. 3, 1920
Tennent, David Hilt	1929 [1]	Jan. 14, 1941	Woodward, J. J	1873	Aug. 17, 1884
Thaxter, Roland	1912	Apr. 22, 1932	Woodward, Robert S	1896	June 29, 1924
Thomson, Elihu	1907	Mar. 13, 1937	Worthen, A. H	1872	May 6, 1888
Torrey, John	(2)	Mar. 10, 1873	Wright, Arthur Williams	1881	Dec. 19, 1915
Totten, J. G	(2)	Apr. 22, 1864	Wyman, Jeffries	(2)	Sept. 4, 1878
Trelease, William	1902 [1]	Jan. 1, 1945	Young, Charles A	1872	Jan. 3, 1904
Trowbridge, Augustus	1919	Mar. 14, 1934	Zinsser, Hans	1924 [1]	Sept. 4, 1940
Trowbridge, John	1878	Feb. 18, 1923			

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[1] Biographical memoirs have not been published.
[2] Charter member, Mar. 3, 1863.
[3] Transferred to roll of members emeriti, 1938.
[4] Transferred to roll of members emeriti, 1929.
[5] Transferred to roll of members emeriti, 1936.
[6] Transferred to roll of members emeriti, 1932.
[7] Transferred to roll of members emeriti in 1933.
[8] Resigned, 1909.
[9] Transferred to roll of members emeriti in 1943.
[10] Transferred to roll of members emeriti in 1935.
[11] Resigned, 1874.
[12] Dropped, 1866; reelected, 1875.
[13] Dropped, 1866; reelected, 1872.
[14] Transferred to roll of members emeriti in 1908.
[15] Transferred to roll of members emeriti in 1924.
[16] Transferred to roll of members emeriti in 1937.
[17] Transferred to roll of members emeriti in 1925.

DECEASED FOREIGN ASSOCIATES

Adams, Frank Dawson
Adams, J. C.
Airy, Sir George B.
Argelander, F. W. A.
Arrhenius, S. A.
Auwers, G. F. J. Arthur
Backlund, Oskar
Baer, Karl Ernest von
Baeyer, Adolf von
Barrande, Joachin
Barrois, Charles
Bateson, William
Beaumont, L. Elie de
Becquerel, Henri
Berthelot, M. P. E.
Bertrand, J. L. F.
Boltzmann, Ludwig
Bornet, Edouard
Boussingault, J. B. J. D.
Boveri, Theodor
Bragg, Sir William
Braun, Alexander
Brewster, Sir David
Brøgger, W. C.
Bunsen, Robert W.
Burmeister, C. H. C.
Candolle, Alphonse de
Cayley, Arthur
Chasles, Michel
Chevreul, M. E.
Clausius, Rudolph
Cornu, Alfred
Crookes, Sir William
Darboux, Gaston
Darwin, Sir George Howard
de Sitter, Willem
de Vries, Hugo
Dewar, Sir James
Dove, H. W.
Dumas, J. B.
Dyson, Sir Frank Watson
Eddington, Sir Arthur Stanley
Ehrlich, Paul
Eijkman, Christian
Engler, Adolph
Faraday, Michael
Fischer, Emil
Forsyth, A. R.
Fowler, Alfred
Geikie, Sir Archibald
Gegenbaur, Karl
Gill, Sir David
Gyldén, Hugo
Goebel, K. E. von
Groth, Paul von
Haber, Fritz
Hadfield, Sir Robert A.
Haldane, John Scott
Hamilton, Sir William Rowan
Heim, Albert
Helmholtz, Baron H. von
Hertwig, Richard
Hilbert, David
Hoff, J. H. van't
Hofmann, A. W.
Hooker, Sir Joseph D.
Huggins, Sir William
Huxley, T. H.
Ibañez, Carlos
Janssen, J.
Jordan, M. E. C.
Joule, James P.
Kapteyn, J. C.
Kekulé, August
Kelvin, Lord
Kirchoff, G. R.
Klein, Felix
Koch, Robert

DECEASED FOREIGN ASSOCIATES—continued

Kohlrausch, Frederich
Kölliker, Albert von
Kossel, Albrecht
Kronecker, Hugo
Kustner, Karl Friedrich
Lacaze-Duthiers, Henri de
Lankester, Sir E. Ray
Larmor, Sir Joseph
Leuckart, Rudolph
Lie, Sophus
Liebig, Justus von
Lister, Lord
Loewy, Maurice
Lorentz, Hendrik Antoon
Ludwig, K. F. W.
Marconi, Marchese
Marey, E. J.
Mendeléeff, D. I.
Milne-Edwards, Henri
Moissan, Henri
Murchison, Sir Roderick I.
Murray, Sir John
Onnes, Heike Kamerlingh
Oppolzer, Theodore von
Ostwald, Wilhelm
Owen, Sir Richard
Parsons, Sir Charles Algernon
Pasteur, Louis
Pavalov, I. P.
Penck, Albrecht
Peters, C. H. F.
Pfeffer, Wilhelm
Picard, Emile
Plano, G. A. A.
Poincaire, Jules Henri
Prain, Sir David
Rammelsberg, C. F.
Ramon y Cajal, Santiago
Ramsay, Sir William
Rayleigh, Lord
Regnault, Victor
Retzius, Gustav
Reymond, Emil Du Bois
Richthofen, F. von
Rosenbusch, Karl Harry Ferdinand
Roux, Wilhelm
Rubner, Max
Rutherford, Baron
Sabatier, Paul
Sachs, Julius von
Schiaparelli, Giovanni
Schneider, Charles Eugene
Schuster, Sir Arthur
Seeliger, Hugo R. von
Sørensen, Søren Peter Lauritz
Spemann, Hans
Stas, Jean Servais
Stokes, Sir George G.
Strasburger, Edouard
Sturve, Otto von
Stumpf, Carl
Suess, Eduard
Sylvester, J. J.
Thomson, Sir Joseph J.
Tisserand, F. F.
Van der Waals, J. D.
Virchow, Rudolph von
Vogel, H. C.
Volterra, Vito
Waldeyer, Wilhelm
Weierstrauss, Karl
Weismann, August
Willstaetter, Richard
Wöhler, Frederich
Wolf, Max F. J. C.
Wundt, Wilhelm
Würtz, Adolph
Zirkel, Ferdinand
Zittell, K. A. R. von

APPENDIX B

NATIONAL RESEARCH COUNCIL

1. EXECUTIVE ORDER ISSUED BY THE PRESIDENT OF THE UNITED STATES, MAY 11, 1918

The National Research Council was organized in 1916 at the request of the President by the National Academy of Sciences, under its congressional charter, as a measure of national preparedness. The work accomplished by the Council in organizing research and in securing cooperation of military and civilian agencies in the solution of military problems demonstrates its capacity for larger service. The National Academy of Sciences is therefore requested to perpetuate the National Research Council, the duties of which shall be as follows:

1. In general, to stimulate research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare.
2. To survey the larger possibilities of science, to formulate comprehensive projects of research, and to develop effective means of utilizing the scientific and technical resources of the country for dealing with these projects.
3. To promote cooperation in research, at home and abroad, in order to secure concentration of effort, minimize duplication, and stimulate progress; but in all cooperative undertakings to give encouragement to individual initiative, as fundamentally important to the advancement of science.
4. To serve as a means of bringing American and foreign investigators into active cooperation with the scientific and technical services of the War and Navy Departments and with those of the civil branches of the Government.
5. To direct the attention of scientific and technical investigators to the present importance of military and industrial problems in connection with the war, and to aid in the solution of these problems by organizing specific researches.
6. To gather and collate scientific and technical information, at home and abroad, in cooperation with governmental and other agencies, and to render such information available to duly accredited persons.

Effective prosecution of the Council's work requires the cordial collaboration of the scientific and technical branches of the Government, both military and civil. To this end representatives of the Government, upon the nomination of the National Academy of Sciences, will be designated by the President as members of the Council, as heretofore, and the heads of the departments immediately concerned will continue to cooperate in every way that may be required.

WOODROW WILSON.

THE WHITE HOUSE, *May 11, 1918.*

(No. 2859)

2. ARTICLES OF ORGANIZATION, NATIONAL RESEARCH COUNCIL

PREAMBLE

The National Academy of Sciences, under the authority conferred upon it by its charter enacted by the Congress, and approved by President Lincoln on March 3, 1863, and pursuant to the request expressed in an Executive order made by President Wilson on May 11, 1918, adopts the following Articles of Organization for the National Research Council, to replace the organization under which it has operated heretofore.

ARTICLE I—PURPOSE

It shall be the purpose of the National Research Council to promote research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare, as expressed in the Executive order of May 11, 1918.

ARTICLE II—MEMBERSHIP

SECTION 1. The membership of the National Research Council shall be chosen with the view of rendering the Council an effective federation of the principal research agencies in the United States concerned with the fields of science and technology named in Article I.

SEC. 2. The Council shall be composed of—

1. Representatives of national scientific and technical societies.
2. Representatives of the Government, as provided in the Executive order.
3. Representatives of other research organizations and other persons whose aid may advance the objects of the Council.

SEC. 3. The membership of the Council shall consist specifically of the members of the executive board and the members of the divisions, constituted as provided in articles III and IV.

SEC. 4. Membership in the Council shall be limited to citizens of the United States. This, however, shall not be construed as applying to membership in committees, appointed by or acting under the Council, whose members are not necessarily members of the Council, provided that members not citizens of the United States shall in no case form a majority of any committee.

ARTICLE III—DIVISIONS

SECTION 1. The Council shall be organized in divisions of two classes:

A. Divisions dealing with the more general relations and activities of the Council.

B. Divisions dealing with special branches of science and technology.

SEC. 2. The divisions of the Council shall be as follows:

A. Division of general relations:
  I. Division of foreign relations.
B. Divisions of science and technology:
  II. Division of physical sciences.
  III. Division of engineering and industrial research.
  IV. Division of chemistry and chemical technology.
  V. Division of geology and geography.
  VI. Division of medical sciences.
  VII. Division of biology and agriculture.
  VIII. Division of anthropology and psychology.

SEC. 3. The number of divisions and the grouping of subjects in article III, section 2, may be modified by the executive board of the National Research Council.

SEC. 4 (*a*). Each division of general relations shall consist of a chairman, one or more vice chairmen, representatives of the Government and of national and international organizations, and members at large, appointed as provided in article VI.

(*b*) There may be an executive committee of each division of general relations, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30 or, in case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division, except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

Sec. 5 (*a*). Each division of science and technology shall consist of a chairman and of representatives of the Government and of such national societies as seem essential for the conduct of the business of the division appointed as provided in article VI. Members at large may also be appointed as provided in article VI.

(*b*) There may be an executive committee of each division of science and technology, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30, or, in the case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

(*c*) The terms of office of the chairmen of the divisions of science and technology, other than that of engineering and industrial research, shall be so arranged by the chairman of the Council that one-third of these terms expire each year.

Sec. 6. The chairman of each division shall be ex officio a member of all committees of the division.

Sec. 7. Actions by the division involving matters of policy shall be subject to approval by the executive board.

Article IV—Administration

Section 1. The general officers of the National Research Council shall be a chairman, chosen as provided in article V, section 1; a treasurer (see art. V, sec. 3); and such honorary officers as may be appointed by the Council of the National Academy of Sciences, upon nomination by the executive board.

Sec. 2. The affairs of the National Research Council shall be administered by an executive board and its administrative committee. Actions by these bodies involving financial responsibilities or the appointment of general officers must be approved by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy of Sciences under general authority, or under such special authority as may be conferred on it by the Council of the National Academy of Sciences.

Sec. 3. The executive board shall consist of the members of the executive committee of the Council of the National Academy of Sciences; the chairman, treasurer, and honorary officers of the National Research Council; the chairmen of the divisions of general relations and of the divisions of science and technology of the National Research Council; the members of the committee on policies; the president or other representative of the American Association for the Advancement of Science; the chairman or other representative of the Engineering Foundation; and six members at large appointed for a term of 3 years, or for an unexpired term in case of vacancy, by the president of the National Academy of Sciences, on recommendation of the executive board. The president of the National Academy of Sciences shall preside at the meetings of the executive board.

Sec. 4. In administrative matters the executive board shall be represented by an administrative committee, which shall consist of the chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy, and the chairmen of the divisions of the National Research Council.

Sec. 5. The administrative committee shall have power to act upon all matters except those which may be reserved by the executive board for its own action; but the administrative committee shall report all its actions to the executive board. The administrative committee shall prepare the annual budget for submission to the executive board at its annual meeting.

Sec. 6. (*a*) There shall also be a committee on policies of the National Research Council. This committee shall be composed of the president of the National Academy of Sciences, and nine members appointed for terms of 3 years by the executive board, preferably so that it may consist largely of persons who have had past experience in the affairs of the National Research Council. The executive board shall appoint the chairman of the committee on policies to serve for 1 year beginning July 1 or until his successor is appointed. This committee shall submit to the executive board recommendations as to general policies.

(*b*) At the annual meeting of the executive board in 1933, nine members of the committee on policies shall be appointed; three to serve for 1 year, three for 2 years, and three for 3 years, their respective terms to be determined by lot. Each year thereafter the terms of three members will expire, and their successors, to serve for 3 years each, shall be appointed at the annual meeting of the executive board in that year. The date of expiration of the term shall be June 30. In case of vacancy the executive board may fill the unexpired term by appointment.

ARTICLE V—APPOINTMENT AND DUTIES OF OFFICERS OF THE RESEARCH COUNCIL

SECTION 1. The chairman of the National Research Council shall be appointed by the executive board, subject to confirmation by the Council of the National Academy of Sciences, and shall hold office at the pleasure of the board. The chairman shall be the executive officer of the National Research Council and shall have charge of its general administration. He shall act as chairman of its administrative committee, and shall be, ex officio, a member of all divisions and committees of the Council.

SEC. 2. There shall be appointed by the executive board, upon recommendation of the chairman of the National Research Council, an officer with the title of executive secretary of the Council, whose duties it shall be to assist the chairman in the administration of the Council. He shall attend all meetings of the executive board and of the administrative committee, and act as their secretary, and shall hold office at the pleasure of the board.

SEC. 3. The treasurer of the National Academy of Sciences shall be, ex officio, treasurer of the National Research Council.

SEC. 4. In case of a vacancy in the office of the chairman of the National Research Council or of the absence or disability of the chairman, an acting chairman may be appointed by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy, upon recommendation of the executive board of the Research Council or its administrative committee.

ARTICLE VI—NOMINATION AND APPOINTMENT OF OFFICERS AND MEMBERS OF DIVISIONS

SECTION 1. *Divisions of science and technology.*—(*a*) The chairman of each division shall be nominated to the executive board by the division concerned, with the approval of the administrative committee. The chairman shall be appointed by the executive board at its annual meeting for a term of 3 years.

(*b*) The national societies to be represented in each of the divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of national societies in each division shall be nominated by the societies, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the President of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

(*d*) Members at large, if any, in each division shall be nominated by the division concerned, with the approval of the executive board, and shall be appointed by the president of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

SEC. 2. *Divisions of general relations.*—(*a*) The officers of each of the divisions of general relations shall be appointed by the executive board to serve for a period of 3 years, except that the foreign secretary of the National Academy of Sciences shall be, ex officio, chairman of the division of foreign relations.

(*b*) The national and international societies or associations to be represented in each of these divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of such societies or associations shall be nominated by the societies or associations, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

(*d*) Members at large in each division shall be nominated by the division, approved by the executive board, and appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

SEC. 3. The Government bureaus, civil and military, to be represented in the divisions of the Council shall be determined by the Council of the National Academy of Sciences, on recommendation from the executive board of the National Research Council.

SEC. 4. The representatives of the Government shall be selected by the secretaries of the departments concerned, after conference with the chairman of the National Research Council, and the names of those thus proposed shall be presented to the president of the National Academy of Sciences to be nominated by him to the President of the United States for designation for service with the National Research Council. Each Government representative shall serve during the pleasure of the President of the United States, not to exceed a term of 3 years, and a vacancy from any cause shall be filled for the remainder of the term in the same manner as in the case of the original designation.

SEC. 5. The terms of office of officers and members, unless otherwise provided, shall terminate on June 30 of the year in which their appointments expire.

SEC. 6. Vacancies occurring in the divisions of either class, except as to representatives of the Government, may be filled for the unexpired term by the executive board, upon recommendation of the division concerned, or ad interim by the administrative committee upon similar recommendation.

ARTICLE VII—MEETINGS

SECTION 1. The annual meeting of the executive board shall be held in April in the city of Washington at the time of the meeting of the National Academy of Sciences. Special meetings may be held at other times at the call of the chairman of the National Research Council. A majority of the members of the board shall constitute a quorum for the transaction of business.

SEC. 2. Stated meetings of the administrative committee shall be held in the city of Washington at least five times a year, at such dates as shall be determined by the chairman of the National Research Council. Special meetings may be held at other times on call of the chairman. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 3. The committee on policies shall hold one stated meeting during the year, preferably in Washington at the time of the annual meeting of the National Academy of Sciences. Special meetings may be held at any time on call of the chairman of the committee. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 4. Each division of science and technology shall hold at least one stated meeting during the year, at a time to be determined by the chairman of the division in consultation with the chairman of the Council. Special meetings may be called at other times by the chairman of the division.

SEC. 5. Meetings of any division of general relations shall be held upon the call of its chairman.

ARTICLE VIII—PUBLICATIONS AND REPORTS

SECTION 1. An annual report on the work of the National Research Council shall be presented by the chairman to the National Academy of Sciences.

SEC. 2. Other publications of the National Research Council may include papers, bulletins, reports, and memoirs, which may appear in Proceedings or Memoirs of the National Academy of Sciences, in the publications of other societies, in scientific and technical journals, or in a separate series of the National Research Council.

ARTICLE IX—AMENDMENTS

SECTION 1. By action of the National Academy of Sciences, on April 29, 1919, power of amendment of these articles of organization is given to the Council of the National Academy of Sciences.

3. BYLAWS

1. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee of the National Academy of Sciences and be directly responsible to the treasurer.
2. The executive board may create such other salaried officers as are necessary for the transaction of the business of the Council.
3. Officers of the Council, members of the executive board, and special agents of the Council, when authorized to travel on business of the Council, may be allowed their necessary expenses.

4. Members of the divisions of science and technology and members of the executive committee of any division of general relations, when attending an authorized meeting, may be reimbursed for traveling expenses, or such portion thereof as the division chairman may determine, within the funds made available for that purpose in the budget.

5. The chairman of each division shall direct the administrative and scientific work of the division.

6. In the fiscal year in which the term of office of a chairman of a division expires it shall be his duty to appoint, on or before February 1, a nominating committee of three, chosen from present or former members of the division or from the membership of existing committees of the division, who, in consultation with the chairman of the division and the chairman of the Council, shall select an available candidate for the chairmanship for the ensuing term. The name of the candidate shall be reported to the division through its chairman and, if approved by the division, shall be recommended to the executive board at its annual meeting for appointment, as provided in article VI, sections 1 and 2, of the articles of organization.

7. Each division of science and technology is empowered to arrange, in accordance with its special needs, for the selection of the members at large of the division, and for an executive committee, to be appointed annually, as provided in article III, section 5 (a) and (b), and article VI, section 1 (d) of the articles of organization.

Each division may designate also one of its members to act as vice chairman of the division, the term of office to be for 1 year.

8. Following the termination of any regular 3-year period of service the chairman or members of a division shall be eligible for reappointment in the same status only after a lapse of 1 year, except that the executive board may continue the service of a chairman or members for a second period of 3 years, or less, when such action is recommended by the division concerned.

9. An annual honorarium may be paid to the chairman of each division of science and technology and an annual maintenance fund shall be appropriated for the support of the work of each division of the Council. The amount of the honorarium and of the maintenance fund of each division shall be determined by the administrative committee, subject to the approval of the executive board and the Council of the National Academy of Sciences or its executive committee.

10. The maintenance fund allotted to each division shall be expended under the authority of the chairman of the division to provide for meetings of the division and its various committees, and other necessary expenses, in accordance with the regulations in force in the Council controlling financial expenditures.

11. No member of a committee constituted to administer funds entrusted to the National Research Council shall receive an honorarium or salary from such funds for his services, except in cases specifically authorized in advance by the executive board or its administrative committee, but members of such committees may be reimbursed from the funds for expenses incurred in the work of the committee.

12. Members of special committees organized within any of the divisions must be approved by the administrative committee before official notification of appointment is made by the chairman of the division.

13. Solicitation of funds for the support of projects of a division may be made only after authorization by both the executive board (or its administrative committee) and the Council of the National Academy of Sciences (or its executive committee). Such solicitation shall be conducted under the direction of the chairman of the National Research Council acting in conjunction with the chairman of the division concerned.

14. Special funds granted to the National Research Council, other than those for fellowships and grants-in-aid, must be expended in accordance with budgets previously approved by the administrative committee.

15. It shall be the duty of the chairman of each division of the Council to submit an annual report of the activities of his division to the chairman of the Council on or before June 30. Interim reports shall be made to the chairman of the Council before each stated meeting of the administrative committee.

16. Standing committees of the executive board, unless otherwise provided for, shall be appointed annually by the board at its April meeting, or, in case of need, by the administrative committee at one of its stated meetings.

17. The executive board, at its annual meeting in April, shall appoint a nominating committee of three members to prepare nominations for presentation at the next annual meeting of the board for vacancies in the committee on policies

and in the list of members at large of the board, occurring at the end of the fiscal year.

18. Amendments of bylaws may be made by the executive board at any authorized meeting of the board.

19. A publication to be known as the Bulletin of the National Research Council shall be established to provide for the publication of materials originating in the work of the Council. The Bulletin shall be issued as occasion demands.

20. A series to be known as the Reprint and Circular Series of the National Research Council shall provide for the distribution of papers published or printed by or for the National Research Council.

4. ORGANIZATION OF THE NATIONAL RESEARCH COUNCIL, 1944-45

A. Officers and Executive Board

OFFICERS

Chairman.—Ross G. Harrison, Sterling professor of biology, emeritus, Yale University, New Haven, Conn.

Treasurer.—Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the Department of Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary.—W. H. Kenerson, National Research Council, Washington, D. C.

Business manager.—George D. Meid, National Research Council, Washington, D. C.

Assistant business manager.—Bernard L. Kropp.

Assistant business manager.—Charles L. Wade.

EXECUTIVE BOARD

Presiding officer.—Frank B. Jewett, president, National Academy of Sciences, ex officio.

MEMBERS EX OFFICIO

Chairman and treasurer of the National Research Council.

Chairmen of the divisions of the National Research Council.

Executive committee of the Council of the National Academy of Sciences

Frank B. Jewett, president, National Academy of Sciences; National Defense Research Committee, 350 Fifth Avenue, New York City.

Isaiah Bowman, vice president, National Academy of Sciences; president, Johns Hopkins University, Baltimore, Md.

F. E. Wright, home secretary, National Academy of Sciences, 2134 Wyoming Avenue, Washington, D. C.

Ross G. Harrison.

Jerome C. Hunsaker.

W. Mansfield Clark, professor of physiological chemistry, School of Medicine, Johns Hopkins University, Baltimore, Md.

A. N. Richards, professor of pharmacology, and vice president in charge of medical affairs, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Committee on policies of the National Research Council

R. A. Millikan, chairman, director, Norman Bridge Laboratory of Physics, and chairman of the executive council, California Institute of Technology, Pasadena, Calif.

Isaiah Bowman, vice chairman.

Vannevar Bush, president, Carnegie Institution of Washington, Washington, D. C.

Karl T. Compton, president, Massachusetts Institute of Technology, Cambridge, Mass.

James B. Conant, president, Harvard University, Cambridge, Mass.

E. G. Conklin, president, American Philosophical Society, Independence Square, Philadelphia, Pa.

Frank B. Jewett, ex officio.

A. N. Richards.

W. J. Robbins, director, New York Botanical Garden, Bronx Park, New York City.

Harlow Shapley, professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

REPRESENTATIVES OF ORGANIZATIONS

President of the American Association for the Advancement of Science, A. J. Carlson, professor of physiology, emeritus, University of Chicago, Chicago, Ill.

Chairman of the Engineering Foundation, A. L. Queneau, metallurgist, United States Steel Corp., 71 Broadway, New York City.

MEMBERS AT LARGE

Carl E. Guthe, director, New York State Museum, State Education Department, Albany, N. Y.

Walter S. Hunter, professor of psychology and director of the Psychological Laboratory, Brown University, Providence, R. I.

Walter R. Miles, professor of psychology, School of Medicine, Yale University, New Haven, Conn.

W. M. Stanley, member, Rockefeller Institute for Medical Research, Princeton, N. J.

Russell M. Wilder, professor of medicine, Graduate School of Medicine, University of Minnesota, Mayo Clinic, Rochester, Minn.

F. W. Willard, president, Nassau Smelting & Refining Co., 170 Fulton Street, New York City.

ADMINISTRATIVE COMMITTEE

The chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy of Sciences, and the chairman of the divisions of the Council, including—

Ross G. Harrison, chairman
Isaiah Bowman
Walter B. Cannon
Leonard Carmichael
W. Mansfield Clark
W. F. Durand
L. P. Eisenhart
Robert F. Griggs
Jerome C. Hunsaker
Frank B. Jewett
William W. Rubey
Lewis H. Weed
F. E. Wright

COMMITTEES

The chairman of the National Research Council is, ex-officio, a member of all divisions and committees of the Council.

Committee on nominations.—Chairman, Jerome C. Hunsaker.

Committee on publication and library.—Chairman, ———.

Committee on buildings and grounds (joint committee with the National Academy of Sciences).—Chairman, George D. Meid.

Committee on exhibits (joint committee with the National Academy of Sciences).—Chairman, F. E. Wright.

Committee on patent policy.—Chairman, Howard A. Poillon, president, Research Corp., 405 Lexington Avenue, New York City.

TECHNICAL COMMITTEES

Advisory committee on scientific personnel.—Chairman, Henry A. Barton, director, American Institute of Physics, 57 East Fifty-fifth Street, New York City.

Advisory committee on scientific publication.—Chairman, L. P. Eisenhart.

Advisory committee to the Weather Bureau.—Chairman, R. A. Millikan.

Committee of apparatus makers and users.—Chairman, W. D. Collins, Chief, Division of Quality of Water, United States Geological Survey, Washington, D. C.

Committee on applied mathematical statistics.—Chairman, L. P. Eisenhart.

Subcommittee on mathematical statistics.—Chairman, S. S. Wilks, professor of mathematics, Princeton University, Princeton, N. J.

Subcommittee on biology.—Chairman, Sewall Wright, professor of genetics, University of Chicago, Chicago, Ill.

Subcommittee on chemistry.—Chairman, Hugh M. Smallwood, research chemist, Eau Claire Ordnance Plant, United States Rubber Co., Eau Claire, Wis.

Subcommittee on medicine.—Chairman, Lowell J. Reed, professor of biostatistics and dean of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

Subcommittee on physics.—Chairman, Edward U. Condon, research laboratories, Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa.

Subcommittee on economics.—Chairman, Charles F. Roos, president, Institute of Applied Economics, Inc., 500 Fifth Avenue, New York City.

Subcommittee on engineering.—Chairman, W. A. Shewhart, engineer, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Subcommittee on psychology.—Chairman, John M. Stalnaker, associate secretary, College Entrance Examination Board, Princeton, N. J.

Subcommittee on statistical quality control.—Chairman, W. A. Shewhart.

Committee on bibliography of American scientific and technical books.—Chairman, John F. Fulton, Sterling professor of physiology, School of Medicine, Yale University, New Haven, Conn.

Committee on geophysics.—Chairman, L. H. Adams, director, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C.

Committee on history of the National Research Council.—Chairman, John F. Fulton.

Committee on insect control.—Chairman, M. C. Winternitz, Anthony N. Brady professor of pathology, School of Medicine, Yale University, New Haven, Conn.

Committee on predoctoral fellowships.—Chairman, John T. Tate, professor of physics and dean of the College of Science, Literature and Art, University of Minnesota, Minneapolis, Minn.

Committee on problems of deafness.—Chairman, Percival Hall, president, Gallaudet College, Washington, D. C.

Subcommittee on evaluation of individual hearing aids.—Chairman, Arthur I. Gates, professor of education, Teachers College, Columbia University, New York City.

Subcommittee on construction and installation of intelligence tests.—Chairman, Irving S. Fusfeld, dean and professor of psychology in charge of research, Gallaudet College, Washington, D. C.

Subcommittee on intelligence and achievement surveys.—Chairman, Irving S. Fusfeld.

Subcommittee on screening tests.—Chairman, Harold Westlake, adviser, division of special education, Department of Public Instruction, Harrisburg, Pa.

Subcommittee on remedial measures for the prevention of deafness.—Chairman, Stacy R. Guild, associate professor of otology and director of the otological research laboratory, School of Medicine, Johns Hopkins University, Baltimore, Md.

Subcommittee on effect of group hearing aids.—Chairman, Harvey Fletcher, acoustical research director, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Committee on relationships with the War and Navy Departments.—Chairman, R. A. Millikan.

Committee on scientific aids to learning.—Chairman, James B. Conant.

Conference board of associated research councils (American Council of Learned Societies, Social Science Research Council, National Research Council).—Chairman, Ross G. Harrison.

Ethnogeographic Board.—Chairman, Carl E. Guthe.

Committee on Latin American studies.—Chairman, Lewis Hanke, director, Hispanic Foundation, Library of Congress, Washington, D. C.

Committee on Pacific science handbooks.—Chairman, Col. John W. Coulter, Military Intelligence Service, Washington, D. C.

REPRESENTATIVES OF THE COUNCIL ON—

Editorial board of the Proceedings of the National Academy of Sciences.—Leonard Carmichael, W. Mansfield Clark, W. F. Durand, Luther P. Eisenhart, Robert F. Griggs, Ross G. Harrison, William W. Rubey, Lewis H. Weed; member of the editorial executive committee, Ross G. Harrison.

Board of trustees of Science Service.—C. G. Abbot, Ross G. Harrison, Hugh S. Taylor.

American Documentation Institute.—W. H. Kenerson.

Committee on National Roster of Scientific and Specialized Personnel of the War Manpower Commission.—J. S. Nicholas, Sterling professor of biology and fellow of Trumbull College, Yale University, New Haven, Conn.

Advisory committee of the Emergency Committee on Aid of Displaced Foreign Scholars.—Ross G. Harrison.

American Council of Human Relations.—Morris E. Opler, assistant professor of anthropology, Claremont College, Claremont, Calif.

Joint committee on indexing and abstracting in the major fields of science, of the American Library Association.—W. H. Kenerson.

Committee Z-39 on standardization in the field of library work and documentation, of the American Standards Association.—W. H. Kenerson.

Advisory council on war history.—John F. Fulton.

Arrangements committee of the twenty-fifth session of the International Statistical Institute.—Ross G. Harrison.

Committee of the Department of State on development of American libraries throughout the world.—W. H. Kenerson.

B. Divisions of the Council

I. DIVISION OF FOREIGN RELATIONS

Chairman, ex officio.—W. B. Cannon.
Vice chairman.—Harlow Shapley.
Secretary.—W. H. Kenerson.

EXECUTIVE COMMITTEE

Chairman, W. B. Cannon; vice chairman, Harlow Shapley; Richard M. Field, Robert F. Griggs, F. R. Moulton.

Members of the Division

EX OFFICIO

President of the National Academy of Sciences: Frank B. Jewett, National Defense Research Committee, 350 Fifth Avenue, New York City.

Foreign Secretary of the National Academy of Sciences: W. B. Cannon, George Higginson professor of physiology, emeritus, Harvard Medical School, Boston, Mass.

Chairman of the National Research Council and the chairmen of all divisions of the Council.

REPRESENTATIVES OF—

American Association for the Advancement of Science

F. R. Moulton, permanent secretary, American Association for the Advancement of Science, Smithsonian Institution, Washington, D. C.

American Academy of Arts and Sciences

E. B. Wilson, professor of vital statistics, Harvard School of Public Health, Boston, Mass.

American Philosophical Society

Detlev W. Bronk, professor of biophysics, and director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Department of State

——— ———.

Department of the Navy

Rear Adm. J. A. Furer, coordinator of research and development, Navy Department, Washington, D. C.

Department of War

Brig. Gen. Charles C. Hillman, commanding general, Letterman General Hospital, San Francisco, Calif.

Pan American Union

L. S. Rowe, director general, Pan American Union, Washington, D. C.

International Astronomical Union

Harlow Shapley, ex officio, chairman, American section, International Astronomical Union; professor of astronomy and director, Harvard College Observatory, Harvard University, Cambridge, Mass.

International Union of Biological Sciences

Elmer D. Merrill, president of the International Union; Arnold professor of botany, administrator of botanical collections, director of the Arnold Arboretum, supervisor of the Bussey Institution, Harvard University, Jamaica Plain, Mass.

International Union of Geodesy and Geophysics

L. H. Adams, president, American Geophysical Union; director, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

J. E. Church, president, section of hydrology, American Geophysical Union; meteorologist, Nevada State Agricultural Experiment Station, Reno, Nev.

Richard M. Field, associate professor of geology, Princeton University, Princeton, N. J.

John A. Fleming, general secretary, American Geophysical Union; president, Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics; director, department of terrestrial magnetism, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington, D. C.

N. H. Heck, president, Association of Seismology, International Union of Geodesy and Geophysics; assistant to the Director, United States Coast and Geodetic Survey, Washington, D. C.

Thomas G. Thompson, professor of chemistry and director of the oceanographic laboratories, University of Washington, Seattle, Wash.

Paul C. Whitney, president, section of oceanography, American Geophysical Union; supervisor, southeastern division, United States Coast and Geodetic Survery, Norfolk, Va.

International Union of Chemistry

Marston T. Bogert, president of the International Union of Chemistry; professor of chemistry, emeritus, Columbia University, New York City.

International Union of Pure and Applied Physics

L. P. Eisenhart, ex officio, chairman, division of physical sciences, National Research Council; professor of mathematics, and dean of the Graduate School, Princeton University, Princeton, N. J.

International Scientific Radio Union

J. H. Dellinger, ex officio, chairman, American section of the International Scientific Radio Union; Chief of the Radio Section, National Bureau of Standards, Washington, D. C.

International Geographical Union

John K. Wright, ex officio, chairman, National Committee of the United States, International Geographical Union; director, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

International Bureau of Weights and Measures

Lyman J. Briggs, director, National Bureau of Standards, Washington, D. C.

International Electrotechnical Commission

E. C. Crittenden, Chief, Electrical Division, and Assistant Director, National Bureau of Standards, Washington, D. C.

International Commission on Illumination

E. C. Crittenden, Chief, Electrical Division, and Assistant Director, National Bureau of Standards, Washington, D. C.

MEMBERS AT LARGE

P. G. Agnew, secretary, American Standards Association, 70 West Forty-fifth Street, New York City.

A. J. Carlson, professor of physiology, emeritus, University of Chicago, Chicago, Ill.

L. C. Dunn, professor of zoology, Columbia University, New York City.

Herbert E. Gregory, Silliman professor of geology, emeritus, Yale University; director emeritus, Bishop Museum of Polynesian Ethnology and Natural History, Honolulu, Hawaii.

Richard Hartshorne, professor of geography, University of Wisconsin, Madison, Wis.

Herbert S. Langfeld, chairman, committee on international cooperation in psychology; Stuart professor of psychology, Princeton University, Princeton, N. J.

Waldo G. Leland, director, American Council of Learned Societies, 1219 Sixteenth Street NW., Washington, D. C.

Harlow Shapley, vice chairman of the division; professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

Walter T. Swingle, collaborator, United States Bureau of Plant Industry, Washington, D. C.

Alexander Wetmore, Secretary, Smithsonian Institution, Washington, D. C.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Committee on Pacific investigations.—Chairman, Herbert E. Gregory.

COMMITTEES COOPERATING WITH INTERNATIONAL COMMITTEES OF THE PACIFIC SCIENCE ASSOCIATION

American National Committee on Oceanography of the Pacific.—Chairman, Thomas G. Thompson.

American National Committee on Land Classification and Utilization in the Pacific.—Chairman, Carl O. Sauer, professor of geography, University of California, Berkeley, Calif.

American Committee on Pacific Seismology.—Chairman, James B. Macelwane, S. J., professor of geophysics and dean of the Graduate School, St. Louis University, St. Louis, Mo.

REPRESENTATIVES OF THE NATIONAL RESEARCH COUNCIL ON—

Council of the Pacific Science Association.—Herbert E. Gregory.

Committee on science and its social relations, of the International Council of Scientific Unions.—Richard M. Field.

II. DIVISION OF PHYSICAL SCIENCES

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Survey of antimalarial drugs (cooperating with the committee on medical research of OSRD, the board for the coordination of malarial studies, and the division of medical sciences).—F. Y. Wiselogle, in charge.

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American Association of Pathologists and Bacteriologists

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American Neurological Association

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American Physiological Society

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American Surgical Association

Harry H. Kerr, 1744 N Street NW., Washington, D. C.

American Veterinary Medical Association

William H. Feldman, associate professor of comparative pathology, Mayo Foundation, Rochester, Minn.

Association of American Physicians

Joseph Earle Moore, associate professor of medicine, School of Medicine, Johns Hopkins University, Baltimore, Md.

Society of American Bacteriologists

N. Paul Hudson, professor of bacteriology, College of Medicine, Ohio State University, Columbus, Ohio.

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Brig. Gen. James S. Simmons, chief, Preventive Medicine Division, Office of the Surgeon General, United States Army, Washington, D. C.

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George B. Darling, vice chairman of the division; National Research Council, Washington, D. C.

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John F. Fulton, Sterling professor of physiology, School of Medicine, Yale University, New Haven, Conn.

Howard T. Karsner, professor of pathology and director, Institute of Pathology, Western Reserve University, Cleveland, Ohio.

Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

Howard C. Naffziger, professor of surgery, School of Medicine, University of California, San Francisco, Calif.

O. H. Perry Pepper, professor of medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

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13. *Board for the coordination of malarial studies.*—Chairman, Robert F. Loeb.

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Panel on biochemistry of antimalarials.—(See division of chemistry and chemical technology, p. 143.)

Panel on synthesis of antimalarials.—(See division of chemistry and chemical technology, p. 143.)

14. *Committee on information.*—Chairman, Morris Fishbein, editor, Journal of the American Medical Association, 535 North Dearborn Street, Chicago, Ill.

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American Dairy Science Association

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American Genetic Association

H. C. McPhee, Assistant Chief, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

American Institute of Nutrition

L. A. Maynard, director, School of Nutrition, and professor of animal nutrition, Cornell University, Ithaca, N. Y.

American Physiological Society

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American Phytopathological Society

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American Society of Agronomy

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American Society of Animal Production

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American Society for Horticultural Science

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American Society of Ichthyologists and Herpetologists

M. Graham Netting, secretary, American Society of Ichthyologists and Herpetologists, Carnegie Museum, Pittsburgh, Pa.

American Society of Mammalogists

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American Society of Parasitologists

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Mycological Society of America

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Society of American Foresters

Hardy L. Shirley, senior silviculturist, Allegheny Forest Experiment Station, Philadelphia, Pa.

Soil Science Society

Wildlife Society

Lloyd W. Swift, Chief, Division of Wildlife Management, Forest Service, United States Department of Agriculture, Washington, D. C.

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C. F. Korstian, vice chairman of the division; dean of the school of forestry, Duke University, Durham, N. C.

A. C. Redfield, professor of physiology and tutor in the department of biology, Harvard University, Cambridge, Mass.

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Ira N. Gabrielson, Director, Fish and Wildlife Service, United States Department of the Interior, Washington, D. C.

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The chairman of the division is, ex officio, a member of all committees of the division.

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Committee on food supply.—Chairman, John D. Black, Henry Lee professor of economics, Harvard University, Cambridge, Mass.

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Committee on research personnel.—Chairman, C. A. Elvehjem.

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>
> *Committee on veterinary services to farm animals.*—Chairman, Roy C. Newton, vice president in charge of research, Swift & Co., Chicago, Ill.

Advisory committee on problems of the United States Forest Service.—Chairman, Aldo Leopold, professor of wildlife management, University of Wisconsin, Madison, Wis.

Committee on aerobiology.—Chairman, E. C. Stakman, professor of plant pathology, University of Minnesota, University Farm, St. Paul, Minn.

Committee on animal health.—Chairman, G. H. Hart, professor of animal husbandry, University of California, Davis, Calif.

Committee on animal nutrition.—Chairman, L. A. Maynard.

Committee on biological processes of aging.—Chairman, William DeB. MacNider, Kenan research professor of pharmacology and dean of the School of Medicine, University of North Carolina, Chapel Hill, N. C.

Committee on crop protection.—Chairman, E. C. Stakman.

Committee on the ecology of animal populations.—Chairman, W. C. Allee, professor of zoology, University of Chicago, Chicago, Ill.

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Committee on human heredity.—Chairman, Laurence H. Snyder, professor of zoology and chairman of the department of zoology and entomology, Ohio State University, Columbus, Ohio.

Committee on the maintenance of pure genetic strains.—Chairman, Walter Landauer, professor of genetics, college of agriculture, University of Connecticut, Storrs, Conn.

Committee on research on food resources of coastal waters.—Chairman, Daniel Merriman, assistant professor of biology, and director of the Bingham Oceanographic Laboratory, Yale University, New Haven, Conn.

Committee on wildlife (joint committee with the Wildlife Society).—Chairman, E. Laurence Palmer, professor of rural education, Cornell University, Ithaca, N. Y.

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Vice chairman.—Ralph Linton.

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Fred Eggan, assistant professor of anthropology, University of Chicago, Chicago, Ill.

John Gillin, associate professor of anthropology, Duke University, Durham, N. C.

M. J. Herskovits, professor of anthropology, Northwestern University, Evanston, Ill.

W. W. Hill, associate professor of anthropology, University of New Mexico, Albuquerque, N. Mex.

Clyde H. M. Kluckhohn, associate professor of anthropology, Harvard University, Cambridge, Mass.

George P. Murdock, professor of anthropology, Yale University, New Haven, Conn.

R. Lauriston Sharp, assistant professor of anthropology, Cornell University, Ithaca, N. Y.

Julian H. Steward, director, Inter-American Anthropological Institutes, Bureau of American Ethnology, Washington, D. C.

American Psychological Association

Gordon W. Allport, associate professor of psychology, Harvard University, Cambridge, Mass.

John E. Anderson, professor of psychology, and director of the institute of child welfare, University of Minnesota, Minneapolis, Minn.

Arthur G. Bills, professor of psychology, University of Cincinnati, Cincinnati, Ohio.

Hadley Cantril, associate professor of psychology, Princeton University, Princeton, N. J.

Karl M. Dallenbach, professor of psychology, Cornell University, Ithaca, N. Y.

Edna Heidbreder, professor of psychology, Wellesley College, Wellesley, Mass.

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Willard C. Olson, professor of education and director of research in child development, University of Michigan, Ann Arbor, Mich.

Dael L. Wolfle, assistant professor of psychology, University of Chicago; Chicago, Ill.

MEMBERS AT LARGE

Fay-Cooper Cole, professor of anthropology, University of Chicago, Chicago, Ill.

Ralph Linton, professor of anthropology, Columbia University, New York City.

A. T. Poffenberger, professor of psychology, Columbia University, New York City.

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The chairman of the division is, ex officio, a member of all committees of the division.

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Committee on the anthropology of Oceania.—Chairman, George P. Murdock.

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Advisory board on mechanical and technical personnel.—Chairman, C. L. Shartle, professor of psychology, Ohio State University, Columbus, Ohio.

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Subcommittee on problems of leadership.—Chairman, Henry E. Garrett, professor of psychology, Columbia University, New York City.

Subcommittee on Problems of Mental Deficiency.—Chairman, Edgar A. Doll, director of research, the Vineland Training School, Vineland, N. J.

Subcommittee on psychological aspects of readjustment.—Chairman, H. E. Burtt, professor of psychology, Ohio State University, Columbus, Ohio.

Subcommittee on survey and planning.—Chairman, Robert M. Yerkes, emeritus professor of psychobiology, Yale University, New Haven, Conn.

Subcommittee on a textbook in military psychology.—Chairman, Edwin G. Boring, professor of psychology, Harvard University, Cambridge, Mass.

Committee on fellowships.—Chairman, Leonard Carmichael.

Committee on food habits.—Chairman, Carl E. Guthe, director, New York State Museum, State Education Department, Albany, N. Y.

Committee on the history of psychology and the war.—Chairman, Robert M. Yerkes.

Committee on international cooperation in psychology.—Chairman, Herbert S. Langfeld, Stuart professor of psychology, Princeton University, Princeton, N. J.

Committee on international cooperation in anthropology.—Chairman, M. J. Herskovits.

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Committee on Latin-American psychology.—Chairman, Irvin L. Child, assistant professor of psychology, Yale University, New Haven, Conn.

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Committee on a survey of South American Indians.—Chairman, John M. Cooper, professor of anthropology, Catholic University of America, Washington, D. C.

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5. NATIONAL RESEARCH FELLOWSHIPS

The National Research Council has been entrusted by the Rockefeller Foundation with appropriations to provide for a limited number of postdoctoral fellowships for the purpose of promoting fundamental research in science primarily in educational and research institutions of the United States. These fellowships are awarded to persons who have demonstrated a high order of ability in research for the purpose of enabling them to obtain additional experience in research at institutions which make adequate provision for effective prosecution of research. Applicants are eligible for appointment who are citizens of the United States or of Canada and, as a rule, who are under 35 years of age and have fulfilled all requirements for the doctor's degree not later than the close of the calendar year in which their applications are filed, or who have had training equivalent to that represented by the doctor's degree. The minimum stipend for these fellowships is $2,000 per year. Under special conditions fellows may be appointed for study abroad.

In addition to fellowships in the general fields of medicine, maintained by the Rockefeller Foundation, the Council also administers fellowships for the study of the filtrable viruses and for investigations in the basic fields related to orthopedic surgery, supported by the National Foundation for Infantile Paralysis, Inc.

A special series of medical fellowships supported by a grant from the Rockefeller Foundation, and known as the Welch Fellowships in Internal Medicine, is also awarded to physicians under 40 years of age who are citizens of the United States and who have demonstrated unusual aptitude and promise of achievement in internal medicine, teaching, and investigation. These fellowships are designed to provide an opportunity for a prolonged period of advanced training in the field of internal medicine. This training may include study and investigation in the basic medical sciences as well as clinical experience, teaching, and research.

Natural Sciences

Fellowships in the following subjects are administered by the National Research Fellowship Board in the natural sciences: Physics, astronomy, chemistry, mathematics, geology, paleontology, physical geography, botany, zoology, agriculture, forestry, anthropology, and psychology.

When requested to do so, the board is ready to consider entering into cooperation with universities in the support of participating fellowships by providing a part-time research fellowship in connection with a part-time university instructorship.

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Isaiah Bowman, president, Johns Hopkins University, Baltimore, Md.

M. H. Jacobs, professor of general physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Frank B. Jewett, ex officio, president, National Academy of Sciences; National Defense Research Committee, 350 Fifth Avenue, New York City.

Duncan A. MacInnes, member, Rockefeller Institute for Medical Research, Sixty-sixth Street and York Avenue, New York City.

John C. Slater, professor of physics, in charge of the department, Massachusetts Institute of Technology, Cambridge, Mass.

Fellowships for 1944–45 have been awarded to the following persons:

In chemistry.—Henry A. Lardy.

In mathematics.—Robert Schatten.

In zoology.—William Hovanitz.

In botany.—Mortimer P. Starr.

In psychology.—Herman A. Witkin.

Medical Sciences

The fellowships in the medical sciences, including those relating to the filtrable viruses and orthopedic surgery, are administered by the medical fellowship board.

MEMBERS OF THE BOARD

Francis G. Blake, chairman, dean and Sterling professor of medicine, School of Medicine, Yale University; physician in chief, New Haven Hospital, New Haven, Conn.

Alfred Blalock, professor of surgery, School of Medicine, Johns Hopkins University, Baltimore, Md.

Paul R. Cannon, professor of pathology, University of Chicago, Chicago, Ill.

A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard Medical School, Boston, Mass.

Homer W. Smith, professor of physiology and director of the physiological laboratories, New York University College of Medicine, New York City.

Lewis H. Weed, ex officio, chairman, division of medical sciences, National Research Council; professor of anatomy, and director of the School of Medicine, Johns Hopkins University, Baltimore, Md.

ADDITIONAL MEMBERS FOR THE CONSIDERATION OF THE WELCH FELLOWSHIPS IN INTERNAL MEDICINE

Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

T. Grier Miller, professor of clinical medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

John B. Youmans, associate professor of medicine and director of postgraduate instruction, School of Medicine, Vanderbilt University, Nashville, Tenn.

Fellowships for 1944–45 have been awarded to the following persons:

In fields of general medicine.—Sidney S. Sobin and Harry A. Wilmer.

In virus research.—Edward H. Anderson.

Welch fellowship in internal medicine.—S. Howard Armstrong, Jr., and Joseph F. Ross.

6. MEMBERS OF THE NATIONAL RESEARCH COUNCIL, 1944–45

Adams, C. A., Edward G. Budd Manufacturing Co., Philadelphia, Pa.

Adams, L. H., geophysical laboratory, Carnegie Institution of Washington, Washington, D. C.

Agnew, P. G., American Standards Association, 70 West Forty-fifth Street, New York, N. Y.

Allport, Gordon W., Harvard University, Cambridge, Mass.

Anderson, John E., University of Minnesota, Minneapolis, Minn.

Annand, P. N., United States Bureau of Entomology and Plant Quarantine, Washington, D. C.

Archibald, Raymond C., Brown University, Providence, R. I.

Auchter, E. C., Pineapple Research Institute of Hawaii, Honolulu, T. H.

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Bogert, Marston T., Columbia University, New York, N. Y.
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Bronk, Detlev W., School of Medicine, University of Pennsylvania, Philadelphia, Pa.
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Brown, Ralph H., University of Minnesota, Minneapolis, Minn.
Burr, George O., School of Medicine, University of Minnesota, Minneapolis, Minn.
Bush, Vannevar, Carnegie Institution of Washington, Washington, D. C.
Cannon, W. B., Harvard Medical School, Boston, Mass.
Cantril, Hadley, Princeton University, Princeton, N. J.
Carlson, A. J., University of Chicago, Chicago, Ill.
Carmichael, Leonard, Tufts College, Medford, Mass.
Cattell, McKeen, Cornell University Medical College, New York, N. Y.
Chadwell, Harris M., Tufts College, Medford, Mass.
Cheney, Monroe G., Anzac Oil Corp., Coleman, Tex.
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Cole, Storrs W., Ohio State University, Columbus, Ohio.
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REPORT OF THE NATIONAL ACADEMY OF SCIENCES

NATIONAL RESEARCH COUNCIL

⁂

FISCAL YEAR
1945–1946

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1947

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LETTER OF TRANSMITTAL

NATIONAL ACADEMY OF SCIENCES,
Washington, D. C., June 30, 1947.

Hon. ARTHUR H. VANDENBERG,
President pro tempore of the United States Senate,
Washington, D. C.

SIR: I have the honor to transmit to you herewith the annual report of the National Academy of Sciences for the fiscal year which ended June 30, 1946.

As is indicated in the prefatory paragraph of the president's statement, preparation of the report has been greatly delayed by extreme press of postwar work presented to the National Academy and National Research Council by both Government departments and private agencies.

Yours respectfully,

FRANK B. JEWETT, *President.*

ACT OF INCORPORATION

AN ACT To incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard,[1] at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden,[2] Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren,[2] United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Englemann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Giles,[3] United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherfurd, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California; their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

SEC. 2. *And be if further enacted*, That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, bylaws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division into classes, and all other matters needful or usual in such institution, and to report the same to Congress.

SEC. 3. *And be it further enacted*, That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States.

GALUSHA A. GROW,
Speaker of the House of Representatives.
SOLOMON FOOTE,
President of the Senate pro tempore.

Approved, March 3, 1863.
ABRAHAM LINCOLN, *President.*

---

[1] The correct name of this charter member was F. A. P. Barnard.
[2] Declined.
[3] The correct name of this charter member was J. M. Gilliss.

AMENDMENTS

AN ACT To amend the act to incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National Academy of Sciences, approved March third, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said Academy as provided in said act.

Approved, July 14, 1870.

AN ACT To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, and its several supplements be, and the same is hereby, authorized and empowered to receive bequests and donations and hold the same in trust, to be applied by the said Academy in aid of scientific investigations and according to the will of the donors.

Approved, June 20, 1884.

AN ACT To amend the act authorizing the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes, approved June twentieth, eighteen hundred and eighty-four, be, and the same is hereby, amended to read as follows:

"That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, be, and the same is hereby, authorized and empowered to receive by devise, bequest, donation, or otherwise, either real or personal property, and to hold the same absolutely or in trust, and to invest, reinvest, and manage the same in accordance with the provisions of its constitution, and to apply said property and the income arising therefrom to the objects of its creation and according to the instructions of the donors: *Provided, however,* That the Congress may at any time limit the amount of real estate which may be acquired and the length of time the same may be held by said National Academy of Sciences."

SEC. 2. That the right to alter, amend, or repeal this act is hereby expressly reserved.

Approved, May 27, 1914.

ANNUAL REPORT OF THE NATIONAL ACADEMY OF SCIENCES

PRESIDENT'S STATEMENT, 1945–46

The fiscal year 1946–47, during which the annual report of National Academy-National Research Council work for the preceding fiscal year is normally prepared, has been one of extreme pressure on the officers and staff. The press of work has resulted from urgent requests for assistance both from departments of Government and from private agencies.

In both sectors the genesis of requests has been the same, viz, a desire to reinitiate normal research activities interrupted by the war and to continue on a permanent basis certain lines of promising work developed in connection with the war.

In addition to this, changes in organization and personnel made necessary by the new peacetime requirements, coupled with the difficulty of obtaining experienced people, have acted to delay greatly compilation of the 1945–46 annual report.

At the beginning of the year under review, the war with Japan was raging at the height of its fury. The Nation's human and material resources were marshaled for the climactic phase of the struggle to subdue the enemy. By the nature of the task at hand, neither our economy, as a whole, nor that portion of it devoted to the solution of wartime scientific and technological problems could anticipate in its forward plans the end of the war which came in August 1945. Most research and development programs felt abruptly the impact of the war's end, but in varying degrees and with various effects upon the several undertakings.

Since the position of the National Academy of Sciences and National Research Council is primarily advisory and consultative in their relation to the departments and agencies of Government, the assistance of these organizations was continued upon request in connection with the tapering off and termination of a considerable number of war research programs.

A few weeks prior to VJ-day the Office of Scientific Research and Development requested the Academy's assistance in the proposed establishment and operation of a Pacific branch headquarters to be located in or near the Philippine Islands. This forward base would have made possible, near combat zones, critical studies, experimental investigations, and tests of equipment, materials, and procedures useful in warfare and in the solution of medical problems related to or arising from the conduct of the war. A director had been appointed and staff partially recruited when termination of hostilities brought a halt to this project.

In the late autumn of 1945 the OSRD requested the Academy's assistance relative to the proposed publication of a monograph on the chemistry of penicillin. The OSRD, cooperating with the Medical

Research Council of Great Britain, had organized and carried forward an intensive study of penicillin chemistry as a war measure. When this project, involving academic and industrial laboratories in this country and abroad, was nearing termination as a war undertaking, it became evident that the publication of the great amount of accumulated scientific information would present some difficult and unusual problems. The Academy undertook to secure cooperation of firms and individuals which had cooperated in the synthesis of penicillin in the preparation of manuscripts, to select authors, assign topics, edit the manuscripts, and in other ways assist in bringing to publication an authoritative and unique monograph. This work was progressing satisfactorily at the end of the year under review.

With the release by the War Department of some information about research in the field of biology done during the war in anticipation that biological agents might be used as weapons by the enemy, brief mention can now be made of the part played by the Academy in this sector.

Immediately following the first intimations that the enemy might be contemplating the offensive use of biological agents, the Secretary of War requested the Academy to make an exhaustive study and report on the potentials in this sector and on the defenses which might be set up against them.

This was done by a distinguished committee. On the basis of its report and recommendations, the whole subsequent very extensive program of research and development undertaken by the War Department was based. Like work connected with the atomic bomb development, this activity was in the top secret category.

Throughout the entire period of the war the original Academy committee, under different cryptic designations, and with slowly changing personnel as the field expanded or military need required, was maintained by the Academy at the request of the Secretary of War as the top advisory and supervisory body.

Guarded offices of these committees were maintained in the Academy building throughout the war.

The operations of these committees and the dependence which the War Department placed on their findings and advice are a striking illustration of the value inherent in the ability of the Academy acting under its congressional authority to select and bring to bear on any scientific problem the best talent in the Nation.

In the reports of the chairmen of the various National Research Council divisions will be found information relating to the many fields in which the Academy, through the Research Council, rendered assistance to governmental agencies and departments. The following are referred to merely as examples of the form and diversity of the assistance provided.

The war metallurgy committee during the year brought to a close its functions as an advisory group to the OSRD and the War Production Board in the broad field of metallurgy research and development. A peacetime continuation of a portion of the war metallurgy committee's work was effectuated by a contract with the Navy Department, Bureau of Ships, in the field of ship construction and ship welding.

The committee on quartermaster problems terminated the large number of subcontracted projects carried out during the war for the Office of the Quartermaster General. A partial list of the subjects investigated included shrink proofing of wool, improvement of military fabrics, footwear, and equipage, and packaging problems. (At the close of the year negotiations had been concluded whereby the Academy, through the Research Council's committee, undertook to provide, in the years ahead, advisory and consultative services to the OQMG in specified fields of interest. In particular this arrangement will require the NRC committee to review and evaluate the OQMG's program of research as well as individual projects, make recommendations with respect thereto, and bring civilian scientific competence to bear on problems encountered in the research and development program of the OQMG.)

The various committees in military medicine, in the Division of Medical Sciences of the NRC, which, under an OSRD contract with the Academy, were advisory to the committee on medical research and other medical departments, continued to function during the year in which "medical science at war" was demobilized in an orderly fashion and concurrently organized on a basis for peace. The Veterans' Administration, the Surgeon General of the Army, the Medical Sciences Branch of the Office of Naval Research, and the Navy Bureau of Medicine and Surgery requested that appropriate advisory committees be established in the various fields of medical sciences in order to continue the advisory and consultative services of the NRC in that area.

Problems arising out of the war on which the assistance of the Academy and Research Council was requested resulted in formal arrangements for the following: A study and report on the engineering aspects of salvaging aluminum scrap, a similar study and report with regard to surplus aircraft engines, and a large and vigorously prosecuted program for the Veterans' Administration and the military departments looking toward the development and improvement of artificial limbs and sensory aids.

The above listing of activities carried out pursuant to contracts with Government departments and agencies is not complete; nor does it include reference to the important work conducted with private funds, largely through the Research Council. In this latter category, to mention but a few, were: The very large postdoctoral fellowship programs in the natural and medical sciences as well as those at the predoctoral level; the continuing studies in the field of food and nutrition; the streptomycin clinical testing program; and the services rendered through the Office of Scientific Personnel.

During the year several members and officers of the Academy and the officers and chairmen of divisions of the Research Council devoted considerable time in studying the relationship to American science, and their organization and procedures deemed best adapted to the discharge of their obligations as expressed in the Academy's charter and the Presidential directive of President Wilson by which the Research Council was perpetuated as an agency of the Academy. As a result of that study the following changes in organization were recommended by the Council and approved by the Academy in business session.

(1) Strengthen the role of the Council of the National Academy of Sciences in policy matters and transfer to it the functions of the present committee on policies, discontinuing that committee.

(2) Simplify the organization of the Executive Board (of the NRC), making it the management organization of the Research Council.

(3) Provide for the appointment by the Council of the Academy of a full-time or essentially full-time Chairman of the Research Council.

(4) Provide for the appointment by the Council of the Academy of chairmen of divisions of the Research Council upon nomination of the Chairman of the Research Council in consultation with the executive committees of divisions.

Following the adoption of the above, proposed new articles of organization of the Research Council were drafted and circulated to the members of the Council and to an ad hoc panel of conferees. At its meeting in June 1946, the Council of the Academy approved new articles of organization for the National Research Council incorporating the above principles and in other ways providing for a mechanism of maximum service to scientists and to the beneficiaries of their accomplishments.

In connection with the atomic bomb tests at Bikini and at the request of the Secretary of the Navy, the Academy selected and nominated a large group of civilian scientists and engineers to be observers at the tests. The purpose of these observers was to supplement the work of the official reporters and to cover all possible fields of interest to civil or military science. The group was consequently constituted of mature experienced men from a wide variety of fields of science and technology.

Throughout the latter part of the fiscal year 1945–46 and continuing throughout the present year, the Academy and Research Council have been rendering aid on scientific matters to the American military governments in both Germany and Japan. In particular this aid has been largely in selecting and securing top civilian scientific advisers for the military governors and their staffs.

In this sector the largest single undertaking has been the selection of a National Academy of Sciences committee of distinguished scientists and technologists to go to Japan and review with AMG and the Japanese the entire program proposed for the rehabilitation of Japanese science and technology along democratic postwar lines.

The presence of this Academy committee was requested jointly by AMG and the leading Japanese scientists and technologists. While initiated during the fiscal year 1945–46, most of the work of formulating the problems to be considered and in selecting and organizing the committee has been done during the present fiscal year and will be reported on later. The committee expects to be in Japan for a considerable portion of the summer of 1947.

Now that the war with its restrictions on publication of work done has terminated and the initial period of readjustment over, it is hoped that the report for the current fiscal year can be essentially a summary of National Academy and National Research Council activities for the past 6 or 7 years. During the period of active hostilities and for much of the periods immediately preceding and following it many things could not be touched upon in a formal report.

Further, many of the activities were of such a continuing nature that they could not have been reported adequately in the report for an arbitrary fiscal year, even had there been no problems of national security involved.

FRANK B. JEWETT, *President.*

JUNE 23, 1947.

MEETINGS OF THE NATIONAL ACADEMY

AUTUMN MEETING, 1945

The 1945 autumn meeting of the National Academy of Sciences was held in Philadelphia on November 16 and 17, jointly with the American Philosophical Society.

BUSINESS SESSION

One hundred and thirty-nine members registered, as follows:

Adams, L. H.
Adkins, Homer
Armstrong, Charles
Bailey, L. H.
Bard, Philip
Berkey, Charles P.
Blakeslee, A. F.
Blalock, Alfred
Breit, G.
Bridgman, P. W.
Briggs, Lyman J.
Bronk, Detlev W.
Buckley, Oliver E.
Bush, V.
Carlson, A. J.
Carmichael, Leonard
Castle, W. B.
Castle, William E.
Clark, W. Mansfield
Cleland, Ralph E.
Coble, Arthur B.
Cohn, Edwin J.
Compton, Arthur H.
Condon, E. U.
Conklin, Edwin G.
Corner, George W.
Cottrell, F. G.
Couch, John N.
Curme, George O., Jr.
Davisson, C. J.
Dempster, Arthur J.
Detwiler, S. R.
Dobzhansky, Theodosius
Dochez, A. R.
Dryden, Hugh L.
DuBois, Eugene F.
DuBridge, L. A.
Duggar, B. M.
Dunbar, Carl O.
Dunn, Gano
Dunn, L. C.
duVigneaud, Vincent
Eisenhart, L. P.
Fenn, Wallace O.
Fermi, Enrico
Fiesser, Louis F.
Fletcher, Harvey
Foote, Paul D.
Forbes, Alexander
Franck, James
Gamble, James L.
Gasser, Herbert S.
Gilman, Henry
Goodpasture, Ernest W.
Hammett, Louis P.
Harkins, W. D.
Harrison, Ross G.
Harvey, E. Newton
Hastings, A. Baird
Heidelberger, Michael
Hulett, George A.
Hull, Albert W.
Hunsaker, J. C.
Hunter, Walter S.
Ipatieff, V.
Ives, Herbert E.
Jacobs, M. H.
Jeffries, Zay.
Jewett, Frank B.
Jones, D. F.
Kasner, Edward
Kelly, Mervin J.
Kemble, Edwin C.
Kidder, A. V.
Kirkwood, John G.
Kistiakowsky, G. B.
Knopf, Adolph
Kunkel, L. O.
LaMer, Victor K.
Langmuir, Irving
Larsen, Esper S., Jr.
Leith, C. K.
Lewis, W. K.
Lewis, Warren H.
Little, C. C.
Longcope, Warfield T.
McClung, C. E.
MacInnes, Duncan A.
MacNider, William deB.
Maynard, Leonard A.
Mendenhall, W. C.
Merrill, E. D.
Merritt, Ernest
Michaelis, Leonor
Miles, Walter R.
Millikan, R. A.
Moulton, F. R.
Mullikan, Robert S.
Murnaghan, F. D.
Oppenheimer, J. R.
Rabi, I. I.
Reichelderfer, Francis W.
Richards, Alfred N.
Robbins, William J.
Rodebush, W. H.
Romer, Alfred S.
Rubey, William W.
Russell, Henry Norris
Saunders, Frederick A.
Schultz, Adolph H.
Scott, W. B.
Simpson, G. G.
Sinnott, Edmund W.
Slepian, J.
Small, Lyndon F.
Smith, Homer W.
Smith, Philip E.
Stadie, William C.
Stadler, L. J.
Stanley, W. M.
Stone, Marshall H.
Tate, John T.
Thom, Charles
Urey, Harold C.
Vaughan, T. Wayland
Veblen, Oswald
Vickery, H. B.
von Neumann, John
Waksman, Selman A.
Wetmore, Alexander
Whitehead, J. B.
Whitney, Hassler
Wigner, Eugene P.
Williams, Robert R.
Willier, Benjamin H.
Wood, R. W.
Wright, F. E.
Yerkes, Robert M.
Zworykin, V. K.

PRESIDENT'S ANNOUNCEMENTS

The president of the Academy made the following announcements:

DEATHS SINCE THE ANNUAL MEETING

Members

Harold Hibbert, born August 27, 1877; elected to the Academy in 1945; died May 13, 1945.

F. B. Sumner, born August 1, 1874; elected to the Academy in 1937; died September 6, 1945.

E. W. Berry, born February 10, 1875; elected to the Academy in 1922; died September 20, 1945.

Walter B. Cannon, born October 19, 1871; elected to the Academy in 1914; died October 1, 1945.

John C. Merriam, born October 20, 1869; elected to the Academy in 1918; died October 30, 1945.

Foreign associate

Charles Edward Spearman, of London, England; elected to the Academy in 1943; died September 17, 1945.

BIOGRAPHICAL MEMOIRS ASSIGNED SINCE THE ANNUAL MEETING

George D. Birkhoff, assigned to Marshall H. Stone.

Lewis R. Jones, assigned to E. B. Fred.

Harry Fielding Reid, assigned to E. W. Berry.

BIOGRAPHICAL MEMOIR READ BY TITLE

Leonhard Stejneger, by Alexander Wetmore.

DELEGATES APPOINTED SINCE THE ANNUAL MEETING

Detlev W. Bronk to the celebration of the two hundred and twentieth anniversary of the foundation of the Academy of Sciences of the Union of Soviet Socialist Republics, Moscow, June 15 to 28, 1945.

C. E. McClung to the academic convocation celebrating the seventy-fifth anniversary of the opening of Wilson College, Chambersburg, Pa., October 13, 1945.

Joseph Slepian to the inauguration of William Allison Shimer as president of Marietta College, Marietta, Ohio, October 20, 1945.

George Gaylord Simpson to the inauguration of Ralph Cooper Hutchison as president of LaFayette College, Easton, Pa., October 26, 1945.

H. E. Gregory to the inauguration of Howard S. McDonald as president of Brigham Young University, Provo, Utah, November 14, 1945; and to the inauguration of Franklin Stewart Harris as president of Utah State Agricultural College, Logan, Utah, November 16, 1945.

APPOINTMENTS

Foreign secretary ad interim: Detlev W. Bronk to serve until June 30, 1946, succeeding Walter B. Cannon (deceased).

Executive secretary of the National Academy and Research Council: George B. Darling, to begin November 1, 1945; confirmed by the Council of the Academy on November 15, 1945.

Chairman of the National Science Fund: Harlow Shapley to succeed W. J. Robbins (resigned); confirmed by the Council of the Academy on November 15, 1945.

Member of the Executive Committee of the Council of the Academy: W. M. Stanley for the period ending June 30, 1948.

PRESIDENT'S REPORT

Since the end of the war the National Academy of Sciences has received an increasing number of requests from the Government, especially relating to projects which were administered by the Office of

Scientific Research and Development during the war. Various Government departments have indicated that many of the services that have been rendered by the Academy and the National Research Council during the war should be continued on a somewhat reduced scale.

The president reported that in accordance with the new directive from the Secretaries of War and of the Navy, as expressed in their joint letter of October 18, 1945, the Research Board for National Security was being reactivated. Plans are being made to complete the interrupted organization of operating divisions and panels under the Board, and to make a thorough resurvey of the program of research and development for national security.

A committee consisting of L. P. Eisenhart, W. W. Rubey, and L. H. Weed has been appointed by the Chairman of the Research Council to consider the development, organization, and future activities of the Research Council. It is hoped that the report of this committee will be ready for presentation to the Academy at the spring meeting.

If some of the legislation which is being contemplated at the present time for governmental support of research eventuates into laws and more agencies are established, the need for an agency like the National Academy will be enhanced rather than diminished by whatever action is taken by the legislators. It is clear that the Academy and Research Council should be kept in a virile state.

DECLARATION ON THE CONTROL OF ATOMIC ENERGY

The president reported action taken by the Council of the Academy following the announcement from Washington of the joint declaration issued by President Truman and Prime Ministers Attlee and King. The Council of the Academy at its meeting on November 15, 1945, unanimously approved the joint declaration and authorized the president to send a telegram to the President of the United States and to issue a statement to the three press services on this subject. The following telegram was sent to President Truman:

> The Council of the National Academy of Sciences, meeting today in Philadelphia, wishes to express unanimous approval of the published text of the Joint Declaration on the Control of Atomic Energy issued on November 15 by you and Prime Ministers Attlee of Great Britain and Mackenzie King of Canada.

The following statement was released to the press:

> President Frank B. Jewett of the National Academy of Sciences announced that the Council of the Academy, meeting in Philadelphia in connection with a 2-day joint meeting of the Academy and American Philosophical Society on atomic energy and its implications, had expressed unanimous approval of the published text of the declaration on atomic energy issued today jointly by President Truman and Prime Ministers Attlee of Great Britain and Mackenzie King of Canada.

REPORTS OF THE TREASURER AND AUDITING COMMITTEE

The report of the treasurer of the Academy for the fiscal year 1944–45 was presented and, upon recommendation by the Council of the Academy, was accepted for inclusion in the printed annual report of the National Academy of Sciences for that period.

The report of the auditing committee was presented and, upon recommendation by the Council of the Academy, was accepted for inclusion in the same printed annual report.

These reports appeared on pages 55 to 83 of the Annual Report of the National Academy of Sciences for the fiscal year 1944–45.

RETIREMENT PENSION TRUST AGREEMENT

The pension plan was adopted in July 1944. Twenty-eight employees constituted the original membership. During the year ended June 30, 1945, seven additional employees became members; one resigned from the staff. During the year certain amendments to the original trust agreement, proposed by the Academy's counsel, were adopted. These amendments changed none of the essential provisions of the agreement. The progress report on the plan was presented to the members of the Council and accepted by them on November 15, 1945.

TRANSFER TO ROLL OF MEMBERS EMERITI

Upon recommendation of the Council of the Academy the request of John Dewey to be transferred to the roll of members emeriti was approved.

PILGRIM TRUST LECTURER

The foreign secretary, Mr. Detlev W. Bronk, announced that Sir Henry Dale, president of the Royal Society, had been invited to give the Pilgrim Trust Lecture in Washington in the spring of 1946 during the Academy meeting.

PUBLICATION OF PAPERS PRESENTED AT MEETING

Following report of the action by the Council on the publication of papers presented at the joint meeting of the National Academy of Sciences and the American Philosophical Society the following motions were adopted: That the American Philosophical Society be authorized to copyright papers presented at the joint meeting, with authority, if it so desires, to extend privileges of publication under the copyright to a commercial book firm if that will insure wider circulation of the papers; and that as soon as available reprints of published papers presented at this joint meeting be mailed to members of both organizations.

INTERNATIONAL MEETING OF SCIENTISTS

Following a suggestion that the National Academy consider calling an international meeting of scientists in the spring of 1946, it was voted that the Council of the National Academy of Sciences be requested, in consultation with the State Department, to give serious consideration to calling an international meeting of scientists at the earliest possible time.

PRESENTATION OF AWARDS

At the dinner of the National Academy of Sciences and American Philosophical Society held at the Benjamin Franklin Hotel, Philadelphia, on Friday evening, November 16, 1945, the following Academy awards were made:

The Cyrus B. Comstock prize of $3,000 for the period 1938–43 was awarded to Donald W. Kerst, department of physics, University of Illinois, for his pioneer work in connection with the development of the betatron and the results which he obtained with this new and powerful scientific tool.

The Daniel Giraud Elliot Medal, in gold, with certificate and honorarium, was presented to Theodosius Dobzhansky, department of zoology, Columbia University, in recognition of the high merits of his work Genetics and the Origin of Species, second edition published in 1941.

The Public Welfare Medal for 1945, in gold, was presented to Vannevar Bush, Director of the Office of Scientific Research and Development, in recognition of his outstanding service in bringing to bear the scientific and engineering talent of this country upon problems of research connected with the war effort.

SCIENTIFIC SESSIONS

The following papers on atomic energy and its implications were presented at the scientific sessions:

FRIDAY, NOVEMBER 16, 1945

Henry DeWolf Smyth, Princeton University: The Scientific Background of the Atomic Bomb.

J. Robert Oppenheimer, California Institute of Technology: Atomic Weapons.

Robert S. Stone, University of California: The Health Protection Activities on the Plutonium Project.

Joseph H. Willits, the Rockefeller Foundation: The Process of Social Adjustment to Atomic Energy.

Jacob Viner, University of Chicago: Implications of Atomic Bomb for International Relations.

Irving Langmuir, General Electric Co., Schenectady: World Control of Atomic Energy.

James T. Shotwell, Carnegie Endowment for International Peace: The Control of Atomic Energy Under the Charter.

SATURDAY, NOVEMBER 17, 1945

Harold C. Urey, University of Chicago: Methods and Objectives of Isotope Separation.

Enrico Fermi, University of Chicago: The Development of the First Chain-Reacting Pile.

Eugene P. Wigner, Princeton University: Resonance Reactions.

John Wheeler, Princeton University: Problems and Prospects in Elementary Particle Research.

ANNUAL MEETING, 1946

The National Academy of Sciences held its annual spring meeting in Washington, D. C., on April 22, 23, and 24. Business sessions were held in the Academy Building, and the scientific sessions were held in the New National Museum, upon invitation by the Smithsonian Institution.

BUSINESS SESSION

One hundred and forty-five members registered, as follows:

Adams, L. H.
Adams, Roger
Adkins, Homer
Armstrong, Charles
Bailey, L. H.
Bard, Philip
Beams, J. W
Bethe, H. A
Blackwelder, Eliot
Blakeslee, A. F.
Blalock, Alfred
Bogert, Marston T.
Boring, Edwin G.
Bowen, I. S.
Bowen, Norman L.
Breit, G.
Bronk, Detlev W.
Bucher, Walter H.
Buckley, Oliver E.
Buddington, A. F.
Carlson, A. J.
Carmichael, Leonard
Clark, W. Mansfield
Clarke, Hans T.
Cleland, Ralph E.
Coblentz, W. W.
Cochrane, E. L.
Cohn, Edwin J.
Compton, Arthur H.
Condon, E. U.

Conklin, Edwin G.
Corner, George W.
Curme, George O., Jr.
Dobzhansky, Theodosius
Dochez, A. R.
Dodge, B. O.
Doisy, E. A.
Dryden, Hugh L.
DuBois, Eugene F.
DuBridge, L. A.
Dunbar, Carl O.
duVigneaud, Vincent
Eisenhart, L. P.
Emerson, R. A.
Erlanger, Joseph
Evans, Griffith C.
Fenn, Wallace O.
Fleming, John A.
Fletcher, Harvey
Foote, Paul D.
Forbes, Alexander
Franck, James
Fred, E. B.
Fuson, R. C.
Gasser, Herbert S.
Gilman, Henry
Goodpasture, Ernest W.
Gregory, William King
Harkins, W. D.
Harrison, Ross G.
Hastings, A. Baird
Hecht, Selig
Hewett, D. F.
Hildebrand, Joel H.
Houston, W. V.
Hudson, Claude S.
Hull, Albert W.
Hunsaker, J. C.
Hunter, Walter S.
Ipatieff, V.
Ives, Herbert E.
Jeffries, Zay
Kasner, Edward
Kemble, Edwin C.
Kirkwood, John G.
Kistiakowsky, G. B.
LaMer, Victor K.
Larsen, Esper S., Jr.
Lashley, K. S.
Latimer, Wendell M.
Lefschetz, Solomon
Leith, C. K.
Lewis, W. K.
Loomis, Alfred L.
MacInnes, Duncan A.
MacNider, William deB.
Marvel, C. S.
Mead, Warren J.
Mendenhall, W. C.
Merrill, E. D.
Merrill, Paul W.
Merritt, Ernest
Michaelis, Leonor
Miles, Walter R.
Millikan, R. A.
Mitchell, S. A.
Moulton, F. R.
Mueller, J. Howard
Murnaghan, F. D.
Pauling, Linus
Rabi, I. I.
Reeside, John B., Jr.
Reichelderfer, Francis W.
Richards, Alfred N.
Rivers, Thomas M.
Robbins, William J.
Rodebush, W. H.
Rose, William C,
Rubey, William W.
Schultz, Adolph H.
Shaffer, Philip A.
Shapley, Harlow
Simpson, G. G.
Sinnott, Edmund W.
Slepian, Joseph
Slichter, Louis B.
Small, Lyndon F.
Stadie, William C.
Stanley, W. M.
Stebbins, Joel
Stern, Otto
Stewart, G. W.
Stone, Marshall H.
Streeter, George L.
Taliaferro, William H.
Tate, John T.
Thom, Charles
Thomas, T. Y.
Tozzer, Alfred M.
Vandiver, H. S.
Vaughan, T. Wayland
Veblen, Oswald
Vickery, H. B.
von Karman, T.
Waksman, Selman A.
Walker, J. C.
Wetmore, Alexander
Willier, Benjamin H.
Wood, R. W.
Wright, F. E.
Wright, W. H.
Yerkes, Robert M.
Yost, Don M.
Zariski, Oscar
Zworykin, V. K.

PRESIDENT'S ANNOUNCEMENTS

The vice president, in the absence of the president of the Academy, made the following announcements:

DEATHS SINCE THE AUTUMN MEETING

Members

Frank Michler Chapman, born June 12, 1864; elected to the Academy in 1921; died November 15, 1945.

Hans Frederik Blichfeldt, born January 6, 1873; elected to the Academy in 1920; died November 16, 1945.

Thomas Hunt Morgan, born September 25, 1866; elected to the Academy in 1909; died December 4, 1945.

Thomas Barbour, born August 19, 1884; elected to the Academy in 1933; died January 8, 1946.

Clarence Erwin McClung, born April 5, 1870; elected to the Academy in 1920; died January 17, 1946.

Harry Bateman, born May 29, 1882; elected to the Academy in 1930; died January 21, 1946.

Charles Vincent Taylor, born February 8, 1885; elected to the Academy in 1943; died February 22, 1946.

William Crowell Bray, born September 2, 1879; elected to the Academy in 1924; died February 24, 1946.

BIOGRAPHICAL MEMOIR ASSIGNED SINCE THE AUTUMN MEETING

Thomas Midgley, Jr., assigned to C. F. Kettering.

BIOGRAPHICAL MEMOIRS READ BY TITLE

John J. Abel, by William deB. MacNider.
Douglas Johnson, by W. H. Bucher.
Lewis Ralph Jones, by E. B. Fred.
E. O. Ulrich, by Rudolf Ruedemann.
Henry Seely White, by Arthur Coble.

APPOINTMENTS

Tellers to count the preference ballots: John A. Fleming, chairman; George W. Lewis, W. W. Rubey.

Auditing committee: John A. Fleming, chairman; Lyman J. Briggs, Alexander Wetmore.

TRUST FUND COMMITTEE APPOINTMENTS

John J. Carty Fund.—Isaiah Bowman, chairman; term as member ending with the annual meeting in 1948. Harvey Fletcher, member, for a term of 5 years ending with the annual meeting in 1951.

Cyrus B. Comstock Fund.—Vannevar Bush, chairman; term as member ending with the annual meeting in 1949. J. W. Beams, member, for a term of 5 years ending with the annual meeting in 1951.

Henry Draper Fund.—John A. Fleming, member, for a term of 5 years ending with the annual meeting in 1951.

Daniel Giraud Elliot Fund.—Alexander Wetmore to succeed Thomas Barbour (deceased).

Marcellus Hartley Fund.—J. B. Conant and Zay Jeffries, members, for terms ending June 30, 1949. (Appointments made subsequent to annual meeting.)

Joseph Henry Fund.—George W. Corner, member, to fill the unexpired term of C. E. McClung (deceased) ending with the annual meeting in 1947. Joel H. Hildebrand, member, for a term of 5 years ending with the annual meeting in 1951.

Marsh Fund.—George G. Simpson, chairman; term as member ending with the annual meeting in 1947. A. F. Buddington, member, for a term of 5 years ending with the annual meeting in 1951.

Murray Fund.—T. Wayland Vaughan, chairman; term as member ending with the annual meeting in 1948. H. U. Sverdrup, member, for a term of 3 years ending with the annual meeting in 1949.

J. Lawrence Smith Fund.—R. J. Trumpler, member, for a term of 5 years ending with the annual meeting in 1951.

Mary Clark Thompson Fund.—Eliot Blackwelder, chairman; term as member ending with the annual meeting in 1947. Carl O. Dunbar, member, for a terr of 3 years ending with the annual meeting in 1949.

SECTION CHAIRMEN ELECTED BY THE SECTIONS FOR THE 3-YEAR TERM ENDING WITH THE ANNUAL MEETING IN 1949

Section of mathematics.—John von Neumann to succeed Solomon Lefschetz.

Section of zoology and anatomy.—Sewall Wright to succeed George W. Corner.

ACADEMY REPRESENTATIVE ON BOARD OF TRUSTEES OF SCIENCE SERVICE

Warren H. Lewis reappointed for a further term of 3 years ending with the annual meeting in 1949. (Other National Academy of Sciences representatives on the board of trustees of Science Service: Robert A. Millikan, 1947; Harlow Shapley, 1948.)

DELEGATES APPOINTED SINCE THE AUTUMN MEETING

G. W. Stewart to the inauguration of Byron Sharpe Hollinshead as president of Coe College, Cedar Rapids, Iowa, December 14, 1945.

Joel Stebbins to the One Hundredth Anniversary of the founding of Beloit College, Beloit, Wis., February 2, 1946.

Vannevar Bush to the inauguration of Arthur Holly Compton as chancellor of Washington University, St. Louis, Mo., February 22, 1946.

S. A. Mitchell to the sesquicentennial celebration of the University of North Carolina, Chapel Hill, N. C., April 12 and 13, 1946.

C. A. Elvehjem to the educational conference celebrating the inauguration of James Lewis Morrill as president of the University of Minnesota, Minneapolis, Minn., April 23 to 25, 1946.

DUES

The recommendation of the Council of the Academy that dues for membership in the Academy for the year ending with the annual meeting in 1947 be $10, was approved.

AMENDMENT OF BYLAWS

Section V, article 5, of the bylaws was amended as indicated below. The parts which were deleted by the amendment are printed in line type, and the new matter is in italics.

AUDITING COMMITTEE

5. The accounts of the treasurer shall, between July 1 and October 1 of each year, be audited ~~under the direction of a~~ *by public accountants employed by an auditing* committee of three members ~~to be~~ appointed by the president at the annual meeting of the Academy. ~~It shall be the duty of the auditing committee to verify the record of receipts and disbursements maintained by the treasurer and the agreement of book and bank balances; to examine all securities in the custody of the treasurer and the custodian of securities and to compare the stated income of such securities with the receipts of record: to examine all vouchers covering disbursements for account of the Adacemy, including the National Research Council, and the authority therefor, and to compare them with the treasurer's record of expenditures; to examine and verify the account of the Academy with each trust fund. The auditing committee may employ an expert accountant to assist the committee.~~ *The public accountants shall report to the committee, who shall in turn present the report of audit to the Academy at the autumn meeting, together with such comments and recommendations as the committee may deem appropriate. The committee may cause to be made any other examinations of the financial records, the accounting records, and the system of internal control of the Academy which, in its judgment, are necessary for the determination of the adequacy and accuracy of the treasurer's accounts.* The reports of the treasurer ~~and auditing committee~~ shall be presented to the Academy at the autumn meeting and shall be published with that of the president to Congress *and* ~~They shall be~~ distributed to the members in printed form ~~at the annual meeting~~.

TERMINATION OF RESEARCH BOARD FOR NATIONAL SECURITY

The vice president announced that the Research Board for National Security had been terminated by request of the Secretaries of War and Navy, February 28, 1946.

REORGANIZATION OF NATIONAL RESEARCH COUNCIL

The vice president reported on steps being taken in the reorganization of the National Research Council, including the four main points upon which agreement on principle had been reached, as follows:

1. Strengthen the role of the Council of the National Academy of Sciences in policy matters and transfer to it the functions of the present Committee on Policies, discontinuing that Committee.
2. Simplify the organization of the Executive Board, making it the management organization of the Research Council.
3. Provide for the appointment by the Council of the Academy of a full-time Chairman of the Research Council.
4. Provide for the appointment by the Council of the Academy of chairmen of divisions of the Research Council upon nomination of the Chairman of the Council in consultation with the executive committees of divisions.

The Chairman of the National Research Council reported on the activities of the Research Council and endorsed the plans for its reorganization.

The Council of the Academy is to take action on the proposed revision of the articles of organization at an early meeting.

REPORT OF THE FOREIGN SECRETARY

The foreign secretary, Mr. Detlev W. Bronk, presented an oral report describing the arrangements which have been made for the visits of foreign guests to the autumn meetings of the National Academy of Sciences and the American Philosophical Society. He also reported on the invitation from the Royal Society of London to send delegates to the celebration of the tercentenary of Isaac Newton's birth, to be held in London in July 1946.

Report accepted.

REPORT OF THE HOME SECRETARY

Since the last annual meeting four additional biographical memoirs (R. H. Chittenden, C. Hart Merriam, Frank Schlesinger, and Leonhard Stejneger) have been published.

Thirteen members and one foreign associate have died since the last annual meeting, as follows:

Members

Harold Hibbert, born August 27, 1877; elected to the Academy in 1945; died May 13, 1945.

Francis Bertody Sumner, born August 1, 1874; elected to the Academy in 1937; died September 6, 1945.

Edward Wilber Berry, born February 10, 1875; elected to the Academy in 1922; died September 20, 1945.

Walter Bradford Cannon, born October 19, 1871; elected to the Academy in 1914; died October 1, 1945.

John Campbell Merriam, born October 20, 1869; elected to the Academy in 1918; died October 30, 1945.

Frank Michler Chapman, born June 12, 1864; elected to the Academy in 1921; died November 15, 1945.

Hans Frederik Blichfeldt, born January 6, 1873; elected to the Academy in 1920; died November 16, 1945.

Thomas Hunt Morgan, born September 25, 1866; elected to the Academy in 1909; died December 4, 1945.

Thomas Barbour, born August 19, 1884; elected to the Academy in 1933; died January 8, 1946.

Clarence Erwin McClung, born April 5, 1870; elected to the Academy in 1920; died January 17, 1946.

Harry Bateman, born May 29, 1882; elected to the Academy in 1930; died January 21, 1946.

Charles Vincent Taylor, born February 8, 1885; elected to the Academy in 1943; died February 22, 1946.

William Crowell Bray, born September 2, 1879; elected to the Academy in 1924; died February 24, 1946.

Foreign associate

Charles Edward Spearman, London, England; elected a foreign associate in 1943; died September 17, 1945.

John Dewey was transferred, at his request, to the roll of members emeriti. There are now 360 members, 6 members emeriti, and 42 foreign associates.

F. E. Wright, *Home Secretary.*

Report accepted.

REPORTS OF TRUST FUNDS

ALEXANDER DALLAS BACHE FUND

During the past year the board of directors of the Alexander Dallas Bache Fund of the National Academy of Sciences made the following grants:

No. 401 for $300 to Prof. Stanley A. Cain, department of botany, University of Tennessee, Knoxville, Tenn., to help defray costs of writing a section of climatology in a proposed book on plant ecology.

No. 402 for $400 to Dr. Rita A. Guttman, Brooklyn College, Brooklyn, N. Y., for apparatus and chemicals to aid in studying the effect of biologically significant substances upon very thin artificial membranes.

No. 403 for $600 to Prof. H. S. Jennings, University of California, Los Angeles, Calif., in partial payment for necessary assistance and supplies in studying Paramecium Bursaria.

The assistant business manager of the Academy reports $6,171.60 as available for grants as of the date of February 28, 1946.

W. J. V. Osterhout,
Sewall Wright,
Edwin B. Wilson, *Chairman.*

Report accepted.

JOHN J. CARTY FUND

The rules relating to the John J. Carty Medal permit its award not oftener than every 2 years, and since the medal was awarded in 1945, the committee has no recommendation to make to the Academy this year.

The financial status of the fund on February 28, 1946, as reported by the assistant business manager, was as follows:

Principal, invested	$25, 000. 00
Income, cash balance	1, 776. 88

O. E. Buckley, *Chairman.*

Report accepted.

CYRUS B. COMSTOCK FUND

The presentation of the Comstock prize ($3,000) awarded in 1943 to Dr. D. W. Kerst of the University of Illinois for the development of the electron inductive accelerator was made at the joint meeting of the Academy and the American Philosophical Society in Philadelphia on November 16, 1945. The delay was for reasons of security.

The committee has not yet taken up consideration of a recommendation for the next (1948) award. The financial status of the fund on February 28, 1946, as reported by the assistant business manager, was as follows:

Principal:	
Invested	$14, 817. 59
Cash (uninvested)	182. 41
Income:	
Invested	960. 00
Cash (uninvested)	6, 575. 97

C. J. Davisson, *Chairman.*

Report accepted.

HENRY DRAPER FUND

The Committee on the Henry Draper Fund reports that in the period April 1, 1945, to March 31, 1946, one grant was made:

To Dr. L. H. Aller, Indiana University, $300 for assistance in reducing spectrograms of planetary nebulae.

The status of the Henry Draper Fund as of March 31, 1946, was as follows:

Invested capital	$10, 000. 00
Uninvested capital	None
Invested income	None
Uninvested income	$1, 754. 52

The presentation of the Henry Draper Medal to Paul W. Merrill will be made at the annual meeting of the Academy in April 1946.

JOEL STEBBINS, *Chairman.*

Report accepted.

DANIEL GIRAUD ELLIOT FUND

As chairman of the Daniel Giraud Elliot Medal committee I submit the report for the committee of the ward for 1944. Our recommendation is as follows:

1944: George Gaylord Simpson, for Tempo and Mode in Evolution. Columbia University Press, 1944.

SAMUEL R. DETWILER,
A. H. STURTEVANT,
ALEXANDER WETMORE,
WILLIAM K. GREGORY, *Chairman.*

Recommendation approved and report accepted.

WOLCOTT GIBBS FUND

The chairman of the committee on the Wolcott Gibbs Fund reports that no applications and no grants were made during the year 1945.

GREGORY P. BAXTER, *Chairman.*

Report accepted.

BENJAMIN APTHORP GOULD FUND

In the period from March 1, 1945, to February 28, 1946, the following grant was made from the Gould Fund:

Grant No. 69: To Dr. Dirk Brouwer, Yale University, $800 for support of the publication of The Astronomical Journal, a grant made in conformity with the wish expressed by the donor, Alice Bache Gould, in the fifth paragraph of the letter accompanying the deed of trust.

The status of the Gould Fund as of February 28, 1946, was as follows:

Invested capital	$18, 914. 64	Uninvested capital	$1, 085. 36
Invested income	3, 670. 00	Uninvested income	4, 817. 45
Total invested	22, 584. 64	Total not invested	5, 902. 81

WALTER S. ADAMS,
JOEL STEBBINS,
FOREST R. MOULTON, *Chairman.*

Report accepted.

MARCELLUS HARTLEY FUND

The deliberations of the committee have not yet reached a point where they are prepared to present a nomination for the Hartley Medal for the year 1946. To date two new names have been suggested.

The business manager of the Academy informs me that the status of the Marcellus Hartley Fund as of February 28, 1946, was as follows:

Principal, invested	$1, 200. 00
Income, cash balance	474. 43

A. R. DOCHEZ, *Chairman.*

Report accepted.

JOSEPH HENRY FUND

The committee on the Joseph Henry Fund recommends the following grants for which applications have been made:

T. T. Chen, lecturer in zoology, University of California, Los Angeles, $500 for technical assistance in research on the cytogenetics of Paramecium. The work will include (1) Studies on "sex stuff" in Paramecium bursaria, (2) studies on sexes in Paramecium bursaria, (3) problem of aging in Paramecium.

E. Carl Sensenig, assistant professor of anatomy, Tulane University School of Medicine, New Orleans, $575 for a study of the normal development of the vertebral canal and its contents, including an analysis of spina bifida and other anomalies. The grant is for the purpose of defraying the expense of Dr. Sensenig while carrying out these investigations in the department of embryology, Carnegie Institution of Washington. (Dr. Corner refrained from voting on this application.)

The business manager of the Academy reports the invested principal of the fund to be $47,163.50 and the cash balance of income to be $4,863.83 as of February 1946.

R. T. Birge,
G. W. Corner,
W. S. Hunter,
R. C. Tolman,
D. W. Bronk, *Chairman.*

Recommendations approved and report accepted.

MARSH FUND

No direct applications for grants from the Marsh Fund have been received since the annual meeting of the Academy in April 1945, and no grants have been recommended.

In March 1946, a suggestion was received through the home secretary, from Dr. A. O. Leuschner, chairman of the trustees of the Watson Fund, that the Marsh Fund participate with other Academy funds in the support of a project proposed by Dr. Jan H. Oort, director of the Leiden Observatory, Holland, for renewed observations of fundamental declinations from an observatory on the Equator. Action on this suggestion will be taken by the Marsh Fund committee during the eighty-third annual meeting.

The unexpended income of the Marsh Fund was reported by the business office of the Academy as $3,392.61 as of February 28, 1946.

W. C. Mendenhall, *Chairman.*

Report accepted.

MURRAY FUND

The committee appointed in 1945 by President Jewett of the National Academy of Sciences and consisting of H. B. Bigelow, T. Wayland Vaughan, and G. H. Parker to consider a candidate for the Oceanographic Medal recommended unanimously that Dr. Joseph Proudman, F.R.S., of the University of Liverpool, England, be the next recipient of the Alexander Agassiz Medal for Oceanography. Dr. Proudman is professor of applied mathematics at the University of Liverpool and has served that institution as its vice chancellor. He is director of the Liverpool Observatory and Tidal Institute and is secretary of the International Association of Physical Oceanography. He was Smith prizeman in 1915 and Adams' prizeman in 1923. He is probably the most distinguished living student of tides in the world. A partial list of his scientific publications is hereby appended.

G. H. Parker, *Chairman.*

Recommendation approved and report accepted.

J. LAWRENCE SMITH FUND

During the past year no requests have been received for grants from the J. Lawrence Smith Fund of the National Academy of Sciences.

From the records of the office of the business manager on February 28, 1946, the uninvested income totaled $3,853.07, invested income $7,073, and invested capital $10,000.

S. A. Mitchell, *Chairman.*

Report accepted.

MARY CLARK THOMPSON FUND

John B. Reeside, Jr., recommended as recipient of medal for 1945–46.

In the three decades that have elapsed since he joined the United States Geological Survey in 1915 as assistant geologist, after having completed his academic training with the Ph. D. degree, John B. Reeside has made himself a recognized master of the stratigraphy and paleontology of the later Mesozoic, expecially of the Rocky Mountain and the Colorado plateau region in the United States from Montana to New Mexico and Arizona. He has studied with equal care and precision their faunas, the record of past environments contained in the sediments of which they consist, and the complicated problems of detailed correlation. His bibliography comprises accordingly, on the one hand, monographs on ammonite genera, such as Metaplacenticeras and Placenticeras, Scaphites, and the giant forms from the Eagle sandstone in Montana; on whole Cretaceous faunas from Colorado, Wyoming, Montana, etc.; and, on the other hand, purely stratigraphic papers on individual regions, and papers of the broadest scope concerning the correlation of formations from the Permian to the end of Cretaceous time.

His wide and accurate personal acquaintance with the Mesozoic formations made him an indispensable adviser to the many parties of the United States Geological Survey who worked in the Rocky Mountain and Colorado plateau regions. It was but natural that when the results of the deliberations of a committee of geologists drawn from the United States Geological Survey, the Geological Society of America, and the American Association of Petroleum Geolgists were to be prepared for publication, Dr. H. D. Miser chose J. B. Reeside as one of two men who were requested to draft the proposed rules for the classification and nomenclature of rock units, which was published in 1933. In the same year his correlation tables for the Triassic, Jurassic, and Cretaceous formed part of Guidebook 29, prepared for the sixteenth international congress. Since 1932 he has been in charge of geology and paleontology in the United States Geological Survey. He held responsible positions in the Geological Society of America, on the council, as well as on such important committees as those on projects and publications. He was equally active among paleontologists. He was president of the Paleontological Society and vice president of the Society of Economic Paleontologists and Mineralogists, and an effective member of many a committee. He made available to the profession his experience in the preparation of paleontological illustrations in a paper on this subject published in 1930.

John B. Reeside has thus made outstanding contributions to the knowledge of the stratigraphy and physical environments of the Mesozoic in the central part of our country and to the knowledge of the life, especially of the invertebrate marine organisms, that characterized it. Because of the thoroughness and breadth of vision with which he conducted these studies, we take great pleasure in presenting John B. Reeside, Jr., as our choice of this year's award.

Eliot Blackwelder,
W. C. Mendenhall,
Walter H. Bucher, *Chairman.*

Recommendation approved and report accepted.

CHARLES DOOLITTLE WALCOTT FUND

The board of trustees of the Charles Doolittle Walcott Fund has made a survey of the world literature of the last decade dealing with pre-Cambrian and Cambrian life and has under consideration several candidates for the Walcott Medal, but it is not yet prepared to make a choice for this honor.

Carl O. Dunbar, *Temporary Chairman.*

Report accepted.

JAMES CRAIG WATSON FUND

Your board of trustees of the Watson Fund unanimously recommends as follows:

A grant to Dr. Jan H. Oort for the Leiden Observatory, Holland, in an amount to be left to the discretion of the Watson trustees, toward a total of $5,000 requested for renewed observations of fundamental declinations of stars by means of azimuth observations from an observatory on the Equator, the total cost of which is estimated at $15,000, the balance of $10,000 to be contributed from other sources, principally the Netherlands Government. The chairman of the Watson trustees is in communication with the trustees of other funds applicable to astronomical research with the object of having the total of the requested $5,000 contributed jointly by them and the Watson Fund. It is expected that such joint contribution will be separately recommended to the Academy. The Leiden program is a repetition, under an improved and revised procedure, of a 1931 expedition which, although of a tentative nature, proved highly successful. As set forth in the Leiden Annals, volume 18, part I, support of the Leiden program has been heartily endorsed, in addition to the trustees of Mount Wilson Observatory, by the directors of Yale University Observatory, the Harvard College Observatory, and the Lick Observatory.

Grant No. 55: An extensive, highly satisfactory report has been received from Dr. Dirk Brouwer on the grant of $1,200 made to the Yale University Observatory for the development of a new theory of the motion of the minor planets of the Trojan group with application to planet 659 (Nestor) on the part of Dr. Hans G. Hertz. The report gives a complete outline of the theory and the computations, which require only finishing touches before publication of the full account of the work in the papers of the American Ephemeris, Nautical Almanac Office. A comparison of observations since discovery in 1908 to 1945, inclusive, of the residuals obtained by the theory with residuals obtained by numerical integration fully establishes the validity of the new theory.

The condition of the Watson Fund on February 28, 1946, was as follows:

Principal:	
Invested	$24,337.74
Cash (uninvested)	662.26
Income: Cash (uninvested)	8,749.30

A. O. Leuschner, *Chairman.*

Recommendation approved and report accepted.

NATIONAL SCIENCE FUND

The following report on the National Science Fund covers the period July 1, 1945, to April 22, 1946.[1]

Funds under administration of the National Science Fund totaled $60,366.42 on April 22, 1946; in addition, $19,612.41 was available for the expense of operating the fund and for administration of specific awards and grants.

Up to this point the expenses have been very small because the committee has naturally awaited the developments in Congress with respect to the establishment of the National Science Foundation before outlining in detail its next activity.

From the $10,000 fund made available for grants-in-aid, the following allotments have been made by the executive committee of the National Science Fund:

Dr. Walter Heymann, Western Reserve University: Effect of administration of large doses of salicylate to children	$500
Prof. Louise Palmer Wilson, Wellesley College: Culture of drosophila	500
Prof. Willem Johan van Wagtendonk, Oregon State College: Purchase of a Warburg constant-temperature bath with accessories	400
Prof. Arthur M. Banta, Brown University: Assistance in completing studies of Dauermodificationen in Cladocera	350
(Owing to the death of Professor Banta subsequent to the making of the grant, this project has been eliminated and the full amount of the grant returned to the National Science Fund.)	
Dr. Zdenek Kopal, Massachusetts Institute of Technology: Assistance in calculating tables for double star theory	1,000

The following funds are also being administered by the National Science Fund at the present time:

1. *The Charles L. Mayer nature of light awards.*—There are two prizes of $2,000 each to be awarded for contributions submitted before January 1, 1946. The first prize of $2,000 will be awarded for an outstanding contribution to our basic understanding of the nature of light and other electromegnetic phenomena which provided in terms intelligible to the community of scientists at large a unified understanding of the two aspects of these phenomena which are at present jointly described by wave and by corpuscular theories. This award is intended to encourage for the benefit of the nonspecialist the interpretation of facts already known to the specialist.

The second prize of $2,000 will be awarded for the outstanding comprehensive contribution to a logical, consistent theory of the interaction of charged particles with an electromagnetic field, including the interaction of particles moving with high relative speeds. It is hoped that this award will stimulate attack on one of the most fundamental unsolved problems in physics.

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[1] Received Jan. 6, 1947.

Members of the advisory committee on these awards are: Dr. E. U. Condon, associate director of the research laboratories, Westinghouse Electric Corp., Director, National Bureau of Standards; Dr. K. K. Darrow, technical staff member, Bell Telephone Laboratories; Dr. Robert A. Millikan, chairman of the executive council, California Institute of Technology; Dr. I. I. Rabi, professor of physics, Columbia University. Twenty-eight entries have been received and are now being studied by the advisory committee.

2. *A Taxonomic Manual of the Penicillia.*—The sum of $13,000 is being administered for the restudy and amplification of Dr. Charles Thom's classification of the Penicillia published in 1930. This work is being carried out under the general supervision of Dr. Thom at the Department of Agriculture's regional laboratory in Peoria, Ill. This project is carried on under a cooperative agreement between the National Science Fund and the Bureau of Industrial and Agricultural Chemistry of the United States Department of Agriculture. Mrs. Dorothy F. Alexander has been employed as an assistant to help perform the required studies

3. *The sugar research awards.*—Acceptance of the administration of the sugar research awards was formally announced at a dinner given by the directors of the Sugar Research Foundation, Inc., in Boston on March 2, 1945. The five awards amount to $45,000; on or about March 1, 1946, and of each of the three succeeding years, an intermediate prize of $5,000 will be given, and on March 1, 1950, a grand prize of $25,000 will be awarded. The awards will be given in recognition of the development of demonstrated original knowledge about, or practical uses for, sugar in the prosecution of the war, in medicine, agriculture, the arts, the industries, or in other fields of human endeavor as judged by their importance in terms of the advancement of knowledge and of the public benefit.

Recipients of the sugar research prizes will be recommended by a special committee consisting of Dr. A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard University; Dr. Charles F. Kettering, vice president of General Motors Corp., president, American Association for the Advancement of Science; Dr. Carl S. Marvel, professor of organic chemistry, University of Illinois, president, American Chemical Society; Dr. Edmund W. Sinnott, Sterling professor of botany, Yale University; Dr. William C. Stadie, John Herr Musser professor of research medicine, University of Pennsylvania; Dr. Vincent du Vigneaud, professor of biochemistry, Cornell University Medical College.

Nominations already submitted are now being considered by the advisory committee, and announcement of the first intermediate sugar research award will be made in the near future.

Howland H. Sargeant,
Executive Secretary, National Science Fund.

REPORT OF COMMITTEE ON THE ALBERT NATIONAL PARK

The committee on the Albert National Park has been inactive for several years, and no present function for it has been discovered. Moreover, other agencies in this country are cooperating with the Belgian authorities and there is no lack of organizational provision for the objectives which originally led to the appointment of this committee. I beg, therefore, to recommend that the Academy's committee on the Albert National Park be discharged.

According to my records, the original membership of the committee was as follows: Frank M. Chapman; Edwin G. Conklin; Clark Wissler; Robert M. Yerkes, chairman.

Edwin G. Conklin,
Clark Wissler,
Robert M. Yerkes, *Chairman.*

Recommendation that the Academy's committee on the Albert National Park be discharged was approved by action of the Council of the Academy at a meeting on March 25, 1946.

REPORT ON BUILDINGS AND GROUNDS

The National Academy of Sciences-National Research Council Building is occupied to capacity with the offices of administration, Research Council divisional and committee offices, and with offices of activities closely associated with the work of the Academy and Research Council. Most activities are occupying less than a desirable amount of space, and the demands for space for new activities are almost beyond our ability to satisfy. The termination of the war did not improve this situation but on the contrary made it more acute. This is due in part to the fact that several Government departments have proposed that activities formerly carried out under the auspices of other institutions during the war be transferred to the Academy and Research Council for continuance on a peacetime basis.

In the Academy-Research Council Building the original plans provided for approximately 14,100 square feet of permanent office space. Due to demands which could not well be denied approximately 8,600 square feet of space in exhibit rooms, the auditorium, library, basement, and auditorium balconies were converted to temporary office space. During the war and up until about a year ago, of this total of about 22,700 square feet approximately 7,400 square feet were occupied by offices of Government departments and agencies. This occupancy by organizations working closely in cooperation with the Academy and Research Council has been reduced to approximately 2,200 square feet at the present time. This space is occupied by the Committee on Medical Research of the Office of Scientific Research and Development. With the demobilization of the Office of Scientific Research and Development it is anticipated that the space now occupied by that organization will be released within the next few months. However, the prospects are not good that we shall be able to abandon much if any of the present temporary office space in the near future in view of the present and anticipated activities of the Research Council and its several committees. It is entirely reasonable to expect that if a majority of the prospective requests from Government materialize and are met in a satisfactory manner, it will be necessary to seek space outside the Academy-Research Council Building in order to house a portion of our activities.

Aside from the usual work in connection with the operation and maintenance of the physical plant during the past year the following merit special mention:

1. Late in November 1945 we began a program of interior painting which when completed will include all offices and other space on all floors, except where painting is not advisable at this time due to the temporary structures which remain in some of the rooms. This work is being accomplished by the employment of skilled painters added to our staff. It is believed that in this manner the cost has been kept at a minimum and that the quality of the work has been controlled satisfactorily.

2. Pointing and calking of joints in the steps to the main approach of the building, in the stones of the terrace wall and at critical points in the main structure of the building are going forward satisfactorily.

3. A professional electrical engineer and consultant was engaged to make a thorough examination, survey, and report on the electrical system in the building. This report, showing the condition of the wiring, the critical points in the system, and including recommendations with respect to maintenance and operation, has proven very useful.

4. Some of the original plumbing equipment which presented a serious maintenance problem has been removed and replaced with the best-quality modern-type equipment. In the course of this work other features of the plumbing system were examined and renewals were made where depreciation or deterioration was indicated.

5. Work was begun and has been approximately one-half completed on closing the walks around the flagpoles on either side of the front of the lot. With the elimination of these walks and the grassing over of the affected areas, the cost of maintenance in this part of the lot will be reduced.

6. Work is continuing on the elimination of certain of the older and less desirable shrubs and plantings in the front area of our lot. This work will provide larger expanses of unbroken lawn and will simplify the maintenance work.

7. The lecture room, board room, and reading room have been used very extensively during the past year to accommodate meetings of divisions and committees of the Academy and Research Council and other groups engaged in closely allied activities. The furniture and equipment in these rooms are badly in need of replacement or renovation. Some work along this line has been done and additional work has been delayed because of the lack of suitable materials.

8. On the south side and the ends of the second and third floors the window blinds which were installed when the building was erected have been replaced with steel venetian blinds.

In general, the building is structurally sound and in good condition after having been occupied for about 22 years. This period of time represents the usual life of certain items of equipment in a building of this type. It must be anticipated that the normal depreciation must be met as the needs arise either by major renovation or by replacement with new and modern equipment. It is indeed fortunate that modest funds estimated to be adequate for this purpose are available at this time in the life of the building.

G. D. Meid, *Custodian of Buildings and Grounds.*

Report accepted.

REPORT ON THE PROCEEDINGS

It is the custom at this time to make a report on the Proceedings of the National Academy of Sciences. With the close of the calendar year 1945 we completed the thirty-first volume of the Proceedings. There were 84 contributions, making 428 pages. The average length of the contributions was 5.1 pages. The distribution was as follows:

Mathematics	35	Zoology and anatomy	6
Physics	3	Physiology and biochemistry	5
Engineering	2	Genetics	9
Chemistry	2	Pathology and bacteriology	15
Botany	4	Miscellaneous	3

Of the 84 contributions 41 were by members of the Academy and one was by a National Research fellow.

E. B. Wilson, *Editor.*

Report accepted.

ELECTIONS

The elections at the annual meeting resulted as follows:

Foreign secretary: Detlev W. Bronk (following interim appointment by the president, with approval of the Council of the Academy, October 11, 1945, vice Walter B. Cannon, deceased) for a term of 4 years ending June 30, 1950.

Two members of the Council of the Academy: Walter R. Miles to succeed himself; I. I. Rabi, succeeding W. Mansfield Clark, for terms of 3 years ending June 30, 1949.

New foreign associates: Sydney Chapman, Sedlian professor of natural philosophy, Queen's College, Oxford, England; Peter Leonidovich Kapitza, Director, Institute for Physical Problems, Academy of Sciences of Union of Soviet Socialist Republics, Moscow, Russia.

New members: Samuel K. Allison, Rudolph J. Anderson, Ernest B. Babcock, Kenneth T. Bainbridge, Elmer K. Bolton, Wilmot H. Bradley, Perry Byerly, Paul R. Cannon, Milislav Demerec, Jesse Douglas, Clarence H. Graham, Morris S. Kharasch, Karl Paul Link, Robert F. Loeb, Esmond R. Long, Joseph E. Mayer, Charles S. Piggot, Marcus M. Rhoades, George Scatchard, Tracy M. Sonneborn, Leslie Spier, S. Smith Stevens, Chauncey G. Suits, Frederick E. Terman, Merle A. Tuve, Chester H. Werkman, Frank C. Whitmore, Roger J. Williams, Wendell P. Woodring.

SCIENTIFIC SESSIONS

At the scientific sessions, held in the auditorium of the National Museum, Washington, D. C., the following papers were presented by invitation:

Monday, April 22, 1946

T. M. Rivers, Rockefeller Institute for Medical Research: Establishment and activities of United States Navy Medical Research Unit No. 2 in the Pacific (illustrated).

C. S. Marvel, University of Illinois: Antimalaria compounds.

J. A. Shannon, the Squibb Institute for Medical Research: The study of the antimalarial activity in the human.

S. A. Waksman, Agricultural Experiment Station, New Brunswick, N. J.: Antibiotics with special reference to streptomycin.

J. E. Moore, Johns Hopkins Medical School: Penicillin and syphilis.

H. L. Haller, United States Department of Agriculture: Insectidal action and chemical composition of organic compounds.

M. E. Ewing, Columbia University: Submarine propagation of sound waves.

W. H. Rodebush, University of Illinois: Screening and toxic smokes.

W. K. Lewis, Massachusetts Institute of Technology: Catalytic cracking of petroleum oils.

Roger Adams, University of Illinois: Chemistry in Germany today.

C. B. Kistiakowsky, Harvard University: Explosives in World War II.

W. D. Harkins, University of Chicago: The mechanism of the emulsion polymerization of rubber and other polymers.

A. F. Spilhaus, New York University: Recent developments in meteorological equipment.

J. Bjerknes, University of California, Los Angeles: Waves and vortices in the atmosphere (illustrated).

J. C. Flanagan, colonel, Army Air Forces: Progress in the Army Air Forces toward the development of a science of the use of human resources.

W. V. Bingham, War Department: Inequalities in adult capacity—from military data.

Isaiah Bowman, Johns Hopkins University: Science in the framework of international policy.

TUESDAY, APRIL 23, 1946

J. C. Hunsaker, Massachusetts Institute of Technology: Jet propulsion.

H. L. Dryden, National Bureau of Standards: Some recent advances in aerodynamics.

M. A. Tuve, Carnegie Institution of Washington: The radio proximity fuse.

L. A. DuBridge, University of Rochester: Microwave radar.

I. I. Rabi, Columbia University: Physical properties of microwaves.

Gerald Fitzgerald, United States Geological Survey: Developments in photogrammetry during World War II.

O. E. Buckley, Bell Telephone Laboratories: Some war-accelerated communication developments.

PRESENTATION OF MEDALS

At the diner of the Academy held at the Statler Hotel on Tuesday evening, April 23, 1946, five gold medals were presented:

The Henry Draper Medal for 1945 was presented to Paul Willard Merrill, Mount Wilson Observatory, in recognition of his many important contributions to astronomical physics, in particular those relating to his researches in stellar spectroscopy.

The Daniel Giraud Elliot Medal for 1942 was awarded to Sir D'Arcy Wentworth Thompson, Department of Natural History, The University, St. Andrews, Scotland, for his work On Growth and Form, revised and enlarged, 1942. The medal was transmitted to him through diplomatic channels.

The Daniel Giraud Elliot Medal for 1943 was received by Karl Spencer Lashley, Yerkes Laboratories of Primate Biology, Inc., for his work Studies of Cerebral Function in Learning, Journal Comparative Neurology, 1943, volume 79: 431–462.

The J. Lawrence Smith Medal for 1945 was presented to Stuart Hoffman Perry, editor and publisher, the Adrian Telegram, Adrian, Mich., for his original investigations of meteoric bodies, published in the United States National Museum Bulletin 184, The Metallography of Meteoric Iron.

The Mary Clark Thompson Medal for 1945 was presented to T. Wayland Vaughn, Washington, D. C., in recognition of his outstanding achievement in such purposeful and ingenious coordination of observations and generalizations made in and bearing on the fields of stratigraphic geology and paleontology.

REPORT OF THE NATIONAL RESEARCH COUNCIL

For the year July 1, 1945, to June 30, 1946

(Prepared in the office of the Chairman of the Council with the assistance of the chairmen of divisions of the Council)

The following report is presented to the National Academy of Sciences by the National Research Council upon the activities of the Council during the fiscal year July 1, 1945, to June 30, 1946.

INTRODUCTION

This year has been one of transition from war to peace. A number of the activities of the Research Council initiated to contribute to the successful prosecution of the war were terminated, but many were transformed into continuing projects of more general peacetime application. These will be discussed more fully later in this report. The Chairman recognizes the whole-hearted devotion of those who subordinated their personal desires and interests to the end that the Council's contribution to the war effort might be most effective and that the needed results in the many projects that were undertaken might be obtained as quickly as possible.

GENERAL ACTIVITIES

Postdoctoral fellowships.—Contrary to expectations, the number of applications for National Research Council fellowships showed slight increase immediately following the end of the war. Customarily, applications are reviewed and fellowships awarded for the ensuing academic year at the annual spring meetings of the boards. However, in order to give opportunity to qualified young scientists to continue their research training with as little delay as possible after their release from war service, both the Fellowship Board in the Natural Sciences and the Medical Fellowship Board instituted a temporary plan of interim appointments.

Natural sciences.—In the natural sciences, 26 new applications were received for work in the academic year 1945–46 and 2 for reappointment. Sixteen fellowships were awarded, including two reappointments, as against five in the previous year.

Medical sciences.—During the year, the Medical Fellowship Board has assumed additional responsibilities. In addition to the regular fellowships in the medical sciences, which have been awarded for the past quarter century, the Board has dealt with fellowships in internal medicine (Welch fellowships), in virus diseases, in orthopedic surgery, in anesthesiology, and in pediatrics. Because of these enlarged duties, the Board has been reorganized in order that the more varied problems may be handled adequately.

Fellowships in anesthesiology were established in 1945 under a grant from the American Society of Anesthesiologists, and to the earlier group of fellowships in virus diseases and orthopedic surgery, supported since 1941 by grants from the National Foundation for Infantile Paralysis, Inc., have been added a more advanced group of senior fellowships in orthopedic surgery, virus diseases, and pediatrics. Like the Welch fellowships in internal medicine, these senior fellowships carry stipends ranging from $3,000 to $6,000 a year for a period of 3 years, and an annual laboratory expense account of $1,000.

For work in the academic year 1945–46 the Medical Fellowship Board received 80 applications for fellowships, from which 28 awards were made, including 7 of the senior grade.

Predoctoral fellowships.—Recognizing that graduate training in the natural sciences had been greatly curtailed during the war, the Rockefeller Foundation made a grant of more than a half million dollars, to be administered by the National Research Council, for fellowships to candidates for the doctor of philosophy degree.

While these fellowships were designed primarily to assist students whose training had been interrupted by war research in a civilian capacity and who were thus not eligible for benefits under the so-called GI bill of rights, fellowships were awarded also to highly qualified applicants who had served in the armed forces, with appropriate adjustments in stipend to be received from the National Research Council. From more than 2,500 applications received, about 200 fellowships were awarded. In the selection of fellows, applications were given preliminary consideration by panels set up in the several fields of science, and on the basis of the recommendations of these several panels, final appointment was made by the committee on predoctoral fellowships.

Conference grants.—The Council has continued to sponsor, through appropriations made by the Rockefeller Foundation, conferences called for the discussion of special problems and meetings of its committees. During the fiscal year 1945–46, a total of $14,386.47 has been spent for such meetings, which have covered a wide variety of subjects and in many instances have resulted in the initiation and support of important undertakings.

Office of Scientific Personnel.—The Office of Scientific Personnel, established in 1941 to assist Federal war agencies in problems relating to scientific personnel, has gradually assumed a role of importance in matters relating so the Nation's supply of scientific manpower. As the war progressed, the Office became more and more concerned with assisting governmental agencies in meeting their problems. The place of scientific personnel in the Nation's activities has become of such great importance that factors affecting the supply and the quality of such workers require careful and intensive study. This is generally recognized not only in the United States but in other countries as well. The Office of Scientific Personnel has become increasingly concerned with securing adequate information on supply and demand, presenting this information to Federal agencies and to the public, and in seeking to create an awareness, on the part of the Government and the public, of the special importance of this problem. During the past year the Office has continued to receive financial support from the American Institute of Physics, the American Mathematical Society, the American Psychological Association, the Geological Society of America, and the National Academy of Sciences.

Scrutiny is already being given to the problem of the status of scientific personnel in any possible future crisis by officers in the War and Navy Departments. The problem has awakened considerable interest in Congress. It is believed that the time is now ripe for an attempt to work out the principles of a national policy with regard to the status of specialized personnel and persons in training, not only for use in wartime, but under some possible form of compulsory service that may be adopted. It seems important, therefore, to utilize the present lull to formulate certain basic concepts upon which national policy must be based.

Committee on insect control.—The National Academy-Research Council Insect and Rodent Control Committee is a direct outgrowth of a similar committee established in September 1944 under the Office of Scientific Research and Development. This original organization was designed to correlate activities in the field of insect and rodent control then under way in the various branches of the Office of Scientific Research and Development, including the National Defense Research Committee, the Office of Field Service, and the Committee on Medical Research. It was early recognized that in times of peace as well as war, problems of insect and rodent control are pressing and that it was necessary to envisage a more enduring organization than could be established in the Office of Scientific Research and Development. This organization, it will be recalled, was developed by Executive order only to serve during the emergency. The National Academy-Research Council committee succeeded the like committee of the Office of Scientific Research and Development in the early winter of 1945 on combined request, to the president of the National Academy of Sciences, by the Director of the Office of Scientific Research and Development, the Secretaries of War, Navy, and the Interior, and the Director of the Federal Security Agency. Many of these groups have recently expressed the hope that the coordination center be continued and several have indicated that the work of the center would have to be duplicated if it were not continued.

Bibliography of American Scientific and Technical Books (1935–44).—The Bibliography of American Scientific and Technical Books, the compilation of which was begun in the spring of 1944, was published in April 1946. The preparation of the bibliography was supported initially by a grant from a group of American publishers, later augmented by a generous grant-in-aid from the Office of the Coordinator of Inter-American Affairs. The bibliography, published by the Yale University Press, is a handsome volume of 1,114 pages and contains approximately 6,000 titles. Although intended primarily for distribution through the State Department to centers of learning in Central and South America, it has had also a wide distribution in the Eastern Hemisphere and in the United States.

Bibliographic service to Central and South America.—Requests for bibliographic material, reproduced in microfilm, were referred to appropriate libraries and depositories in the United States, with the Library of the Department of Agriculture acting as the central clearing house for this activity. Since the material could be sent by air mail, it proved to be exceptionally valuable during the war years and immediately after the war when shipping facilities were still restricted.

During the fiscal year ending June 30, 1946, the bibliographical service to Central and South America provided 145,947 pages of microfilm and 987 publications to scientists and institutions in Latin America. Requests were concentrated in the literature of the natural sciences, particularly botany, chemistry, and entomology, and in the application of these sciences in various fields of technology. Leading in the amount of material requested were Mexico, Brazil, and Artina, followed by Chile, Ecuador, Paraguay, Cuba, Peru, and Venezuela.

Funds are available for the continuance of this project until December 31, 1946.

American Geophysical Union.—Developments during the war in geophysics, bearing, for example, on radio-communication disturbances, radar, isomagnetic maps, improved instruments for aerial surveys, development of water resources, control of erosion, and many other subjects point to their great future peacetime value and aid in solving many complex problems. The membership of the union has enjoyed a steady growth and many of its members who have been on the inactive list are returning to work in geophysics and request affiliation with the union. It is expected that its membership will total approximately 3,000 by the summer of 1946. The Transactions have continued to be published and are again being distributed on an international basis.

The indications are that continuing progress in geophysics, embracing the whole earth, will contribute much to the advancement of human welfare and to international good will.

Advisory committee on scientific publications.—This committee, which was set up in June 1940 to request voluntary censorship of publications of papers the contents of which might be of military importance, has now brought its work to a close after continuous operation from its inception. It handled papers in all the fields of OSRD, and in metallurgy, aeronautics, applied mechanics, and synthetic rubber. An extended report has been prepared for the archives of the Council and the Academy.

Committee on applied mathematical statistics.—A meeting was held in June to consider the report upon a questionnaire which had been sent to about 25 persons relative to the demand for personnel either in colleges and universities, or in government and business. As a result, the committee is making a study of the teaching of statistics and expects to meet in the fall to consider the results of inquiries on the subject sent to about 25 institutions. Also, the various subcommittees are being reorganized under the following chairmen:

Subcommittee on mathematical statistics: S. S. Wilks.
Subcommittee on biology: Sewall Wright.
Subcommittee on chemistry: Hugh M. Smallwood.
Subcommittee on medicine: Lowell J. Reed.
Subcommittee on physics: Edward U. Condon.
Subcommittee on economics: Charles F. Roos.
Subcommittee on engineering: W. A. Shewhart.
Subcommittee on psychology: John M. Stalnaker.
Subcommittee on statistical quality control: W. A. Shewhart.

Committee on neurobiology.—A grant of $4,000 from the John and Mary R. Markle Foundation permitted the committee on neurobiology to survey the present status of knowledge and the trends of research in the broad field of neurobiology, including neuroembryology, neuroanatomy, neurophysiology, psychology, psychiatry, and clinical neurology. It is the purpose of this survey to determine relatively undeveloped areas of the subject, to formulate means for promoting better cooperation between workers in the several subdivisions, and to discover how research in this important science may be furthered. A comprehensive report by authorities in the field is in preparation.

Committee on problems of deafness.—The subcommittee on evaluation of individual hearing aids of the committee on problems of deafness completed during the year a series of investigations which were initiated in 1940 under a grant from the Research Council's committee on scientific aids to learning. A report upon gains in hearing capacity in a 2-year period with hearing aids and in control groups, by Dr. Irving Lorge of Teachers College, Columbia University, and Edmund Prince Fowler, a practicing otologist, will be published shortly.

A final report of the study entitled, "Learning to Use Hearing Aids," by Arthur I. Gates, the chairman of the subcommittee, and Rose E. Kushner, has been published by the Bureau of Publications, Teachers College, Columbia University. More than 100 hard-of-hearing children in the public schools of New York City were provided with hearing aids and participated in the investigation.

Dr. Harvey Fletcher of Bell Telephone Laboratories, the chairman of the subcommittee on group hearing aids, plans shortly to continue a series of investigations which have been interrupted during the war period because of Dr. Fletcher's preoccupation with war research. This study, also, will be supported by a grant from the committee on scientific aids to learning.

Survey of patent policies of universities and nonprofit organizations.—Working under a grant from the Research Corporation, the director of this survey has begun a series of meetings with university groups and research institutes to determine what patent policies are now being followed and to make available in a comprehensive report by the committee recommended procedures to be followed by nonprofit institutions in relation to their own patents and patents to be obtained by individuals in their employ. Particular attention is being paid to the importance of protecting the general public from patent abuse.

Pacific Science Conference and Board.—With the release from Japanese domination of many islands of the Pacific, opportunities were presented for research in this vast area which previously had been closed to American scientists. The National Research Council received a number of requests for assistance in carrying out specific research programs, and as a result a Pacific Science Conference was held under the Council's auspices on June 6, 7, and 8, 1946, to consider means to meet this growing need for assistance. The conference was attended by more than 90 American scientists interested in research in the Pacific, representing the anthropological sciences, the earth sciences, oceanography and meteorology, the plant sciences, public health and medicine, and the zoological sciences. There were also in attendance 75 representatives of Government departments and agencies concerned with problems of the Pacific. As an outcome of recommendations of the Conference, the Research Council established a Pacific Science Board to assist in encouraging and coordinating research in the Pacific, to evaluate specific research programs presented to it, and to serve the Navy Department in screening the large number of requests from American scientists for travel and other facilities in the Pacific area. A complete report of the conference will be published in the bulletin series of the National Research Council.

JOINT ACTIVITIES

Conference Board of Associated Research Councils.—The Conference Board of Associated Research Councils, which, as originally established, included representatives of the American Council of Learned Societies, the Social Science Research Council, and the National Research Council, has been enlarged to include also representatives from the American Council on Education. During the past year the Board held three meetings and discussed many problems falling within the purview of two or more of these organizations. Following are a number of undertakings of the Board in which the National Research Council has participated:

Ethnogeographic Board.—The Ethnogeographic Board concluded activities December 31, 1945, although certain unfinished commitments were still to be completed. It has indicated the wide range of its interest in the comprehensive report which will be published shortly.

The purpose of the Board was to make readily accessible to Washington military and other war agencies such specific regional information and evaluated personnel data as were available to the sponsoring institutions and the numerous other governmental and ouside scientific organizations with which they were affiliated or in contact. The Board consisted of a policy and advisory body, the members of which were selected by the four sponsoring institutions, and a director and a staff with offices in the Smithsonian Institution, Washington, D. C.

The Ethnogeographic Board not only performed a highly valuable service in the war but also served as a unique experiment in the integration of academic research.

Joint committee on Latin-American studies.—This committee is active in the preparation and publication of the series of handbooks on Latin-American studies and also assists in many ways the improvement of cultural relations with the other American countries.

Committee on specialized manpower problems.—The committee on specialized manpower problems (now the committee on specialized personnel) was appointed on February 28, 1946. The original membership included representatives of the four Councils. The National Research Council's Office of Scientific Personnel has served as the channel through which projects of the committee have operated.

History of science in the United States of America.—A committee was appointed by the joint councils to study and make recommendations on the preparation of a history of science in the United States. This will be comprehensive in that the role of science in our educational system, its social aspects, and influence, will be included as well as the purely historical and social aspects.

Joint committee on measurement of opinion, attitudes, and consumer wants.—The committee was organized jointly by the Social Science Research Council and the National Research Council in response to a growing need for objective appraisal of the technique of measurement, and for improved communication among those who are developing the techniques, and for serving those who are applying them in substantive research and those who use the end results.

It is recognized that the skills of mathematicians, psychologists, sociologists, and other professional experts need to be used together in developing this area of applied science.

Because sampling is basic to the effective application of all the other techniques and because it is readily adaptable to organized quantitative study, it was decided to undertake research on that subject first, and substantial support has been obtained from the Rockefeller Foundation for a 2-year study.

LIBRARY

Research supported by industry through scholarships, fellowships, and grants.—This compilation (the last one was published in 1944) has been revised and will appear in an early fall issue of Chemical and Engineering News. It shows an increased number of companies supporting research outside of their own laboratories in educational and scientific institutions. Reprints of the list will be available for distribution. Over 300 supporting companies are included.

Library routine.—It is difficult to report on the routine of the library as it includes any service which may be required to obtain information and publications for the Council personnel. Loans of books from Washington libraries have been generously made to the Council, and the Council library has been of some small service to them at times. There has been a gratifying use of the library by Council officers, which it is hoped will continue.

Industrial Research Laboratories of the United States, eighth edition, 1946.—The revision of this directory was begun in July 1945 and the manuscript sent to press on March 1, 1946. The seventh edition (1940) contained information about 2,264 companies maintaining laboratories, and the eighth edition has 2,443 companies listed. An appendix is included giving a list of colleges and universities offering research service to industry. The book will contain approximately 400 pages, and will sell for $5. It is expected to be ready for distribution early in September. An edition of 4,000 has been ordered.

PUBLICATIONS

A revised list of the publications of the National Research Council was issued in July 1945. The list of the bulletins and the reprints and circulars, and also includes in a supplementary list, the publications issued by commercial houses but representing work done under the auspices of the Council.

The following publications of the Council or sponsored by its divisions and committees were issued during this period:

BULLETINS

No. 112. The Nutritional Improvement of White Rice. M. C. Kik and R. R. Williams. For the Food and Nutrition Board. June 1945. Free. 76 pages.

No. 113. Industrial Research Laboratories of the United States, Including Consulting Research Laboratories. Eighth edition. Compiled by Callie Hull, with the assistance of Mary Timms and Lois Wilson. In press. $5.

REPRINT AND CIRCULAR SERIES

No. 122. Recommended Dietary Allowances. Revised 1945. Food and Nutrition Board. August 1945. 18 pages. Free.

No. 123. The Nutrition of Industrial Workers. Second report of the Committee on Nutrition of Industrial Workers, Food and Nutrition Board. September 1945. 34 pages. Free.

No. 124. A Review of Bloat in Ruminants. Fourth report of the Committee on Animal Health. Prepared by H. H. Cole and others. September 1945. 53 pages. $0.25.

No. 125. The Intramammay Therapy of Bovine Mastitis. Reprinted from the Journal of the American Veterinary Medical Association. 9 pages. $0.25.

PUBLICATIONS OF THE HIGHWAY RESEARCH BOARD

Highway Research Abstracts (10 issues of 10 pages each during the year; mimeographed).

Proceedings of the Highway Research Board, Twenty-fourth Annual Meeting, 1944. Unassembled. Published 1945. 543 pages.

War Time Road Problems Series. Nos. 11 and 13. 1945–46.

PUBLICATIONS OF THE AMERICAN GEOPHYSICAL UNION

Transactions of the American Geophysical Union. Volume 26, Nos. I–III, 1945; volume 27, Nos. I–III, February, April, June, 1946. (The Transactions are issued bimonthly, beginning with 1945.)

MISCELLANEOUS PUBLICATIONS

Organization and Members, 1945–46. December 1945. 92 pages.

Recommended Nutrient Allowances for Domestic Animals. Reports of the Committee on Animal Nutrition.

No. 3. Recommended Nutrient Allowances for Dairy cattle. August 1945. 21 pages.

No. 4. Recommended Nutrient Allowances for Beef Cattle. September 1945. 32 pages.

No. 5. Recommended Nutrient Allowances for Sheep. October 1945. 20 pages.

PERIODICALS

Mathematical Tables and Aids to Computation. Quarterly. Edited on behalf of the Committee on Mathematical Tables and Aids to Computation, Division of Physical Sciences. Subscription price, $3. Volume 1, Nos. 11 and 12, October and July 1945; volume II, Nos. 13 and 14, January and April 1946.

OFFICERS OF THE NATIONAL RESEARCH COUNCIL, 1946–47

GENERAL OFFICERS

Chairman: Detlev W. Bronk, director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Treasurer: Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the department of aeronautical engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Business manager: George D. Meid, National Research Council, Washington, D. C.

Assistant business managers: C. L. Wade and B. L. Kropp, National Research Council, Washington, D. C.

OFFICERS OF DIVISIONS

Foreign relations: Chairman, Detlev W. Bronk; vice chairman, Harlow Shapley, professor of astronomy and director of the Harvard College Observatory, Harvard University, Cambridge, Mass.

Physical sciences: Chairman, R. Clifton Gibbs, professor of physics, emeritus, Cornell University, Ithaca, N. Y.; vice chairman, Arthur B. Coble, professor of mathematics, University of Illinois, Urbana, Ill.

Engineering and industrial research: Chairman, Frederick M. Feiker, professor of engineering administration and dean of the School of Engineering, George Washington University, Washington, D. C.; vice chairman, Hugh L. Dryden, National Bureau of Standards, Washington, D. C.

Chemistry and chemical technology: Chairman, Louis P. Hammett, professor of chemistry, Columbia University, New York City; vice chairman, H. Marshall Chadwell, associate director, the Natural Sciences, Rockefeller Foundation, 49 West Forth-ninth Street, New York City.

Geology and geography: Chairman, Arthur Bevan, State geologist, Virginia Geological Survey, Box 1428, University, Charlottesville, Va.; vice chairman, Lester E. Klimm, professor of geography, University of Pennsylvania, Philadelphia, Pa.

Medical sciences: Chairman, Lewis H. Weed, professor of anatomy, School of Medicine, Johns Hopkins University, Baltimore, Md.; vice chairman, Frederick A. Coller, chairman, department of surgery, School of Medicine, University of Michigan, Ann Arbor, Mich.

Biology and agriculture: Chairman, Robert F. Griggs, executive officer, department of botany, George Washington University, Washington, D. C.: vice chairman, Remington Kellogg, curator, Division of Mammals, Smithsonian Institution, Washington, D. C.

Anthropology and psychology: Chairman, A. Irving Hallowell, chairman, department of anthropology, University of Pennsylvania, Philadelphia, Pa.; vice chairman, Charles W. Bray, department of psychology, Princeton University, Princeton, N. J.

REPORTS OF DIVISIONS

DIVISION OF FOREIGN RELATIONS

(DETLEV W. BRONK, chairman; HARLOW SHAPLEY, vice chairman)

The international affairs of science and the Division of Foreign Relations of the National Research Council in particular suffered grievously through the death of Walter B. Cannon on October 1, 1945. It was just at the time of his passing that the close of the war enabled, scientists to begin the resumption of their associations with foreign colleagues. In such a period Dr. Cannon's wisdom and experience were sorely needed.

The activities of the Division during the remainder of the year were largely devoted to the reestablishment of normal relations between the scientists of the United States and those of other countries. The Division was also concerned with the furtherance of new means for meeting the unique difficulties of a postwar world. These several activities were of three categories.

The most important element in the international affairs of scientists is the personal relation of one scientist to another in a foreign country. Accordingly, the Division did everything possible to aid American and other scientists in this regard. Travel and the issuance of passports were facilitated through cordial cooperation with the State Department; foreign scholars were directed to those in this country best qualified to give desired scientific advice; United States scientists were informed of the status of science and scientists in other countries; exchange of literature and supplies was facilitated; in short, the Division became a clearinghouse for information and advice at the newly opened crossroads of scientific communication.

After 6 years of isolation, the scientists of all countries were eager to take up the interrupted work of the international scientific unions and to resume the periodical scientific congresses. But many practical obstacles to such undertakings remained: Travel restrictions, limitation of travel funds, uncertainty of policy regarding the status of certain national groups, difficulties in recreating disrupted organizations. By various means the Division sought to overcome these difficulties and to aid in the resumption of such activities. In order to bring these problems into focus and to secure advice from those best informed on such matters, the Division sponsored on April 25 a conference on the resumption of international conferences and congresses which was attended by 32 representatives of various fields of science and scholarship and of the State Department.

Finally, the Division worked closely with agencies of the United States and of other governments which were concerned with the development of international cooperation in science. Our collaboration with the Department of State was especially effective, with especial emphasis on the new United Nations Educational, Scientific, and Cultural Organization. Both the Chairman and the Vice Chairman of the Division served on the scientific advisory committee for UNESCO in the Department of State and participated in many public forums dealing with the objectives of this new organization for international cooperation.

DIVISION OF PHYSICAL SCIENCES

(Luther P. Eisenhart, chairman; Henry A. Barton, vice chairman)

Revolving fund for the publication of mathematical books.—During the year the sale of mathematical books amounted to $570.16, so that the balance in the revolving fund for the publication of mathematical books is $1,792.07. This fund was established by grants of $500 in 1920, and $100 in 1922. Five books have been published.

The rotating fund, physics committees.—This fund was established in 1933 with proceeds from the sale of publications issued under the auspices of the Division, particularly from the sales of volumes of the Physics of the Earth series during 1931–32 in the amount of $737.76. At present there is a balance of approximately $10,000 in the fund. The new chairman has been requested to study what should be done with these funds. The publications Hydrology and Meteorology are exhausted, and the question is one for the newly organized division.

Mathematical Tables and Other Aids to Computation.—The journal of Mathematical Tables and Other Aids to Computation has become well established and it is anticipated that before long it will be self-supporting. The success of this enterprise in due to the editor, Prof. R. C. Archibald.

Committee on standards of radioactivity.—This committee is being reorganized to cover the larger field of radioactive stubstances in general.

Committee on line spectra of the elements.—This committee, dormant during the war, has had a meeting and is outlining a program for the future.

Now that the physicists and mathematicians who were engaged in war work have, in the main, been released from these duties the Division will resume its prewar activities.

DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH

(Frederick M. Feiker, chairman; Hugh L. Dryden, vice chairman)

Highway Research Board.—Culminating several years' preliminary effort, the work of the Highway Research Board was enlarged, with the cooperation of the American Association of State Highway

Officials and the Public Roads Administration, to provide a greatly expanded Highway Research Correlation Service. The highway departments of 41 States, Hawaii, Puerto Rico, and the District of Columbia subscribed a total of $64,173 to support this service.

Each of the six departments of the Board held meetings and worked actively during the year on problems relating to highway economics, finance, and administration; design; materials and construction; maintenance; traffic and operations; and soils. Serving on 69 committees of the Board were 589 highway leaders and technicians selected on account of their special familiarity with the subjects under consideration and with a view to the representation of all phases of the matters involved.

The staff of the Board was increased from 5 to 15 persons, and at the end of the year consisted of the Director, Associate Director, engineer of design, engineer of materials and construction, engineer of maintenance and equipment, engineer of soils and foundations, a research engineer, an administrative assistant, two secretaries, two stenographers, and three clerks.

During the year staff engineers of the Board made one or more visits to each of the 48 States for conferences with officials of State highway departments, engineering colleges, and other agencies interested in highway research. Written reports were made on research problems, facilities, and personnel in each State.

A national program of highway research, based on the needs of all States and regions, was developed, with the cooperation of other interested agencies.

To make it more timely and flexible, the publication program of the Board was expanded. Six different types of publications were issued during the year and will be continued. The annual proceedings contain reports and papers of permanent or semipermanent technical value and are standard books of reference throughout the World. Interesting short articles and abstracts of timely research information not generally available are collected in Highway Research Abstracts (11 issues annually). New material important and extensive enough to warrant independent publication is made available in a series of booklets called Research Reports (three issued). Other developments on particular subjects of immediate interest but of less permanent value are published in a new series of bulletins (one issued). In pamphlets known as Current Road Problems (two issued) authoritative committees present the best available knowledge on troublesome phases of highway work still in the development stage. Research correlation circulars (5 issued) contain information of special interest to State highway departments.

The twenty-fifth annual meeting of the Board was held at Oklahoma City, Okla., January 25–28, 1946, with a registered attendance of 414. Tentative plans have been made for the twenty-sixth annual meeting to be held December 5–8, 1946, in Washington, D. C.

The Board actively assisted in preparations for the President's highway safety conference held in Washington May 8–10. The Director served as chairman of the subcommittee on general aspects of engineering, and the administrative assistant was in charge of editing and printing the nine conference committee reports.

The cash income of the Board for the fiscal year, including special projects, was $110,563 of which $14,927 represented advance payments of R. C. S. subscriptions for the 1946–47 fiscal year. Expenditures totaled $76,865.

Board for Prosthetic and Sensory Devices (joint board with Division of Medical Sciences).—Early in 1945 the National Research Council established a committee on prosthetic devices to undertake a research program primarily for the benefit of war amputees on improvement of artificial limbs. In the latter part of 1945 a committee on sensory devices was similarly established to develop a program aimed to bring modern scientific knowledge to the aid of persons receiving sensory injuries as a result of war, especially war-blinded veterans. Prompted by common sponsorships of the programs and by common administrative problems, these two committees were together placed under a Board for Prosthetic and Sensory Devices and the Board was made a joint activity of the Division of Medical Sciences and the Division of Engineering and Industrial Research.

Financial support for the Board and its committees came first from OSRD, through its committee on medical research, until October 31, 1945; since then from the Office of the Surgeon General of the Army. Beginning May 1, 1945, the Army and the Veterans' Administration have contributed equally to the support of the program.

Committee on prosthetic devices.—This committee was established in April 1945 by the National Research Council at the request of the Surgeon General of the Army. The function of the committee is the inauguration and administration of a program of research and development aimed at the improvement of artificial limbs. Although the first concern of the sponsors of the program is the alleviation of the loss of limbs suffered by approximately 17,000 veterans of World War II, it is expected that the benefits of the program will become available to all other amputees. The significance of the task confronting the committee is indicated by the fact that, on the average, the annual number of amputations in civilian life is estimated at from 25,000 to 40,000. It has been reported that 65,000 persons suffered major amputations in the defense industries during the war.

In the first year of its existence, the committee was faced with the task of becoming fully acquainted with its work, developing an efficient organization, and outlining plans and procedures. Substantial progress has been made in the major fields selected for intensive research. The first project under subcontract with the Research Council was initiated by the committee on June 15, 1945; various other contracts have followed at intervals thereafter. During the first year of operation a total of $600,000 has been allocated to 11 research contracts. Several other contracts are contemplated for the immediate future. It is expected that, during the coming year, over $1,000,000 will be spent by the committee on its research and development program.

That important progress has been made during the past year may be attributed, in part, to the experience gained by members of the committee and staff in the handling of OSRD projects during the past 5 years. Progress has also been due to the fact the committee, in accordance with the decision reached at a conference held under the auspices of the National Research Council in Chicago, January 30–February 1, 1945, was formed from a group of men representing the fields of physics, engineering, and surgery.

Under the plan of operation followed by the committee, the surgeons delineate the problems and the engineers undertake to find the most appropriate methods of solving them. Thereafter, contracts are negotiated with organizations qualified to carry on the experimental work. The fundamental laboratory tests are planned and undertaken by engineers. The simulated use tests may be designed by engineers and surgeons in cooperation. The results of service tests are appraised by surgeons and limb fitters with respect to the adaptability of the limb and the comfort of the amputee, and by engineers on questions of mechanical and functional adequacy. Engineers also have the responsibility of considering eventual production of a mechanical part or a structure. In numerous other problems the cooperation of the surgeon and the engineer is required.

Although the activity of the first year has been devoted almost exclusively to the various kinds of arm and leg prostheses, the question of proper fitting has insistently come up for consideration. It is anticipated that intensive work on the simplification of methods of fitting, with assurance of comfort to the user, will constitute a substantial part of the program during the coming year. The fitting of limbs and of orthopedic braces present certain problems in common. Braces, although not strictly prosthetic devices for amputees, are of great importance in paraplegic cases and in other cases of disabilities induced by injuries to the spinal cord, to nerves or bones, or in loss of function of muscles. Important to braces as well as to limbs are the mechanical fittings, joints, and bearings used in the construction of the several devices. These are receiving attention.

Committee on sensory devices.—The work of the committee on sensory devices was taken over by the National Research Council November 1, 1945. During the period between that date and June 30, 1946, the committee's program has been continued along the same lines as when it was operating under OSRD. Principal attention has been given to the development of (1) guidance devices, (2) reading devices, and (3) optical aids for persons of limited vision.

The work on guidance devices for the blind using supersonic waves and visible light has progressed to the point at which it is clear that power and weight requirements can be met and portable devices made. It has been proved that blind people can use them with some success in simple situations. Psychological tests have defined the need more precisely, showing that the chief objective should be the detection of obstacles at relatively short range. It has become apparent that tactile signals rather than auditory will be necessary as the means of conveying to the blind subject the information that the guidance device has located an obstacle. The contractors who are developing the guidance devices have been so instructed.

In the program on reading devices, the workers under a contract with RCA, Drs. Zworykin and Flory, have completed a very ingenious reading device for the blind. Tests with blind subjects are now under way, with only partially encouraging results. It appears that the auditory signals given by the device, although they can be reconverted by an oscillograph back to clearly defined letters, are not sufficiently distinguishable by the ear and brain of the blind user as to be easily learnable. Their ultimate learnability will be ascertained by the tests.

The work on optical devices for persons of limited visual acuity has resulted in the production of pilot models of a highly corrected widefield reading glass. This is now being tested in a preliminary way in school classes.

A magnetic recorder borrowed from the Navy has been placed by the committee in the hands of an intelligent blind student who is testing its utilization for purposes of study and the preparation of verbal reports.

The committee established and directed seven research contracts totaling $320,000.

Committee on quartermaster problems.—The research and development program under the supervision of this committee has increased considerably in volume and importance during the year. The projects have been concerned primarily with the improvement of present quartermaster items or with the development of new items to meet special conditions of service. In general, the objectives have been to increase the comfort and living conditions of the soldier (clothing, shoes, tents, germicides, insecticides, etc.) and to increase the efficiency and useful life of the item. This work has been carried on effectively for the Office of the Quartermaster General.

The two most important research programs were concerned with the improvement of textiles (cotton and wool), and leather and footwear. During the year these programs were coordinated and substantially increased in scope. The military objectives were defined and a broad program established based on military requirements. In these two fields alone the War Department spends annually large sums of money; consequently, the possibilities are great not only for improving the efficiency of the various items but also for saving a substantial amount of public money in the future. In this connection the preshrinkage of woolen fabrics has been extended and the study of improvements in design and construction of textiles for clothing and tentage has been continued.

The work of this committee has been divided into four main classifications as follows: Textiles; plastics; leather and footwear; germicides, insecticides, biologicals, etc. An advisory subcommittee has been appointed in each of the four fields of research with the chairman of each serving as a member of the committee on quartermaster problems. The research activities in charge of this committee during the year represent the expenditure of approximately $680,000.

The committee and staff have assisted the Technical Director of the Research and Development Branch of the Office of the Quartermaster General by advising on a wide variety of problems involving research and development, personnel, administrative procedures and policies, contracts, etc. If the information was not available within the committee, it was obtained from outside sources.

At the present time the committee has under consideration nine new projects on which the Military Planning Division of the Office of the Quartermaster General has requested advice and assistance. It is probable that research programs will be established to obtain the necessary information or to produce the new or improved item. The responsibility and the advisory assistance of this committee to the Office of the Quartermaster General will be increased during the coming year.

A monograph on flameproofing has been prepared and will be recommended for publication in the near future.

Committee on fatigue in industry.—This committee's subcommittee on nutrition completed its survey and the preparation of a manuscript, entitled "Food Service for Workers," intended to provide a nontechnical and graphic presentation of the problems and advantages of in-plant feeding of workers which might arouse the interest of nontechnical personnel of management and labor. Steps are being taken to publish this as a manual and to provide also for publication of a résumé of the manual in some interested periodical publication.

War metallurgy committee.—In June 1946 the war metallurgy committee concluded its somewhat more than 4 years of activity as a wartime unit of the division and was discharged with official expressions of appreciation and thanks from the president of the Academy and the chairman of the Council. The advisory division of the committee (the advisory committee on metals and minerals) had functioned for a still longer period, since midsummer of 1940, as an Academy committee.

This committee, with advisory, process research, products research, and research information divisions, furnished both advisory services and research supervisions and administration in the fields of metals and minerals to the Office of Scientific Research and Development and the national defense research committee and to the War Production Board and its Office of Production Research and Development. Over $1,500,000 of WPB research funds were applied to research contracts under the direction of this committee in programs on production of alumina and of magnesium, on mica processing, on iron and steel processing, on a wide variety of conservation and substitution studies and surveys, on industrial diamonds, and on several miscellaneous metal and mineral problems. Similarly, nearly $5,000,000 of OSRD research contract projects were the responsibility of this committee in the fields of aircraft materials, armor plate, guns and ammunition, heat-resisting alloys, welding, foundry materials and practice, examination of enemy matériel, and research on certain miscellaneous materials of war. The last of the OSRD contract research projects in charge of this committee was concluded early in 1946.

In all, 1,016 advisory and research reports were issued through the war metallurgy committee to OSRD and WPB. The concluding months of the work of the committee were devoted principally to the preparation of summary technical reports covering the several programs of the 4 years of operation, a history of the organization and administration of such programs, and in reviewing for declassification the wartime reports issued under its supervision.

From March 1 to June 30, 1946, the committee, at the request of the Navy Department, Bureau of Ships, rendered advisory services on several Navy research contracts dealing with metallurgical problems in the welding of ship hulls. With the discharge of the war metallurgy committee a new committee is being constituted to continue similar research advisory services to a joint research program in the same field sponsored by the Navy, Maritime Commission, United States Coast Guard, and the American Bureau of Shipping.

Conference on electrical insulation.—This conference is a rather informal, largely autonomous body of some 200 to 300 individuals interested in problems of electrical insulation. It is an outrgowth of the committee on electrical insulation, set up by the NRC during World War I; and retains nominal affiliation with the Division of Engineering and Industrial Research. During World War II the usual annual meetings of the conference were halted, largely by limitations imposed by military security. Early in 1946 a move was made by the chairman and the executive committee of the conference to resume active operation, and plans were developing as of the close of June 1946 for a meeting at Johns Hopkins University in late October or early November.

Surplus aircraft engines.—At the request of the Surplus War Property Administration, later the War Assets Administration, the Division arranged for a survey of the possible uses and of the disposal of Government-owned surplus aircraft engines. The survey was made by the firm of Ford, Bacon & Davis, and was not encouraging from the point of view of general-use power development from surplus engines.

Coordination of research in the building construction field.—On request to the NRC from the Senate Committee on Small Business, the Division undertook a brief survey which indicated the possible opportunity of establishing a building construction research board patterned in part after the Highway Research Board.

A special committee on research of the construction industry advisory council of the United States Chamber of Commerce, under the chairmanship of Mr. Eric Johnston, recommended that the United States Chamber of Commerce sponsor the formation of a construction industry research board. The proposal was accepted, in principle, at the annual meeting held at Atlantic City in April. A meeting of the special committee on research is to be held in the early fall for the purpose of recommending ways and means of preliminary financing for the undertaking. The committee made three broad recommendations:

1. That the National Research Council be requested, through the National Academy of Sciences, to establish a construction industry research board composed of men from industry and government who are recognized for their competence in the various aspects of construction research and operating practices.
2. The board to be implemented by a permanent staff consisting of a director and a group of experts in the various fields of construction research.
3. A budget of $100,000 annually for 5 years to provide the personnel and necessary secretarial, office and travel facilities for this proposed specialized organization.

DIVISION OF CHEMISTRY AND CHEMICAL TECHNOLOGY

(W. Mansfield Clark, chairman; Harris M. Chadwell, vice chairman)

During the last years of the war the principal work of the office of the Chairman had to do with the panels that were organized by the Division and that operated under the independent Board for the Coordination of Malarial Studies in cooperation with the Division of Malaria, CMR.

With the cessation of hostilities the committee on medical research, OSRD, planned the termination of contracts on the less critical investigations and the continuation to June 30, 1946 of those studies which were necessary to evaluate the more promising of the new compounds.

The contracts of those investigating the biochemistry of the malarial parasites were terminated on December 31, 1945. At the Atlantic City meeting of the Federation of American Societies for Experimental Biology, in April 1946, a symposium on the biochemistry of malaria parasites was held and elicited such interest that these papers will be published in the forthcoming proceedings of the federation.

The work of the synthetic chemists other than those in or attached to industry started in 1942 on a volunteer basis. In the following spring this work was supported by OSRD on the recommendation of CMR. In 1944, when the panel of review had digested the accumulated information, there was a demand for rapid expansion of synthesis in one group of compounds after another. This required a better coordination of the synthetic work, the direction of which had been decentralized from the first for reasons of economy. To meet the new requirements Dr. Carl S. Marvel was induced to take the chairmanship of the panel on synthesis. He retained the regional directors, namely, Dr. Robert Elderfield, Dr. Ralph Shriner, and Dr. Joseph Koepfli, added to his staff Dr. Arthur Cope, and obtained, in addition to the chemists already under contract, the services of division 9 of NDRC. Dr. Marvel's very efficient organization resulted in great acceleration of the synthetic work in general and particularly in the rapid explorations of the more promising groups of compounds within which new antimalarials of promise have been found on the basis of the pharmacological and clinical researches. Most of the contracts terminated December 31, 1945, but a few contracts on synthesis were continued to June 30, 1946, both for the purpose of completing a few syntheses in groups of compounds which had shown extraordinary interest and to provide materials for further pharmacological and clinical testing of drugs that had shown high antimalarial activity.

CMR directed the survey of antimalarial drugs to devote the time from September to June 30 in preparation of a monograph embodying all the factual data on the compounds tested. To be included was information which had been submitted in confidence, provided release of this information could be obtained. It may now be reported that the commercial firms have very generously released for this publication information on all compounds that are of any interest whatsoever in the malaria program.

Dr. Frederick Y. Wiselogle, who has been in charge of the survey of antimalarial drugs, has done an outstanding job, as will be made apparent when the three-volume monograph of which he is editor, appears. While it is too early to enumerate precisely the number of compounds actually tested, the accession numbers of the survey run over 15,000. In addition to the immense clerical work of cataloging a variety of information on these compounds, the survey under Dr. Wiselogle's direction has prepared innumerable tables for review purposes by the Board's panel of review, has routed drugs to laboratories, handled circulation of reports on the data obtained, and has carried on voluminous correspondence regarding innumerable details. Of particular value to the intelligent use of the data have been the services of Dr. Kenneth Blanchard, whose visits to various laboratories, consultation with members of the various panels, searches in the literature, and suggestions have constituted an outstanding contribution. These men were ably supported by the staff.

Frequently the Chairman of the Division and the survey of antimalarial drugs received information submitted in confidence by commercial firms in America and abroad. Of course, none of this was released except by the expressed permission of the suppliers, and it should be put in the record that no request for information considered by the Board for the Coordination of Malarial Studies, or by the preceding organizations, to be of critical importance was refused by a commercial firm. This is an outstanding evidence of cooperation.

With the cessation of financial support for the work of the conference on the synthesis of cortical hormones the Chairman of the Division requested Dr. Hans Clarke to take over the chairmanship of this conference, primarily to serve the members of the conference with regard to the publication policy. There had been exchanged across the conference table information acquired in the laboratories of academic and commercial institutions. Also, part of the work in the academic institutions had been done under Government contract. The papers appeared during the year in the Journal of Biological Chemistry.

The Division initiated an information center for the compilation of data on compounds tested as agents against filariasis, schistosomiasis, and other tropical diseases other than malaria. Finally this office was made a joint project between the Division of Medical Sciences and the Division of Chemistry and continued under the general supervision of the Division of Medical Sciences. This office is being continued under the immediate direction of Dr. Lucille Farquahar.

During these last few months a committee of the Council has compiled a set of recommendations regarding the reorganization of the Council, which were approved in principle by the administrative committee and with some modifications were adopted by the Council of the Academy. Of principal interest to the members of the Division is the intent expressed in the articles of organization to make the Research Council the principal operating agency of the Academy whenever possible. There are many special provisions to which the members of the Division will wish to give attention when the articles are published. Undoubtedly these provisions will facilitate the work of the Council as a whole and of this Division in particular.

DIVISION OF GEOLOGY AND GEOGRAPHY

(William W. Rubey, chairman; Lester E. Klimm, vice chairman)

General activities.—At the close of the war nearly everyone, geologists and geographers included, found themselves confronted somewhat unexpectedly with new responsibilities and time-consuming problems of reconversion. It may be hoped that these necessary readjustments in the work of individuals and institutions were largely completed in the first postwar year and that a normal pattern of peacetime activities can be reestablished shortly thereafter.

However, the course ahead for the sciences is not yet clear. The spectacular contributions of technology to the winning of the war, the grave implications of some of the new weapons and, it must be added, the uncertain international situation have combined to bring a wide recognition of the essential place of science in our modern life and the need for increased support of it from public funds. To the extent that this interest may result in public attitudes and legislation that will encourage the development of the basic sciences, it should prove broadly beneficial to the general welfare. It remains to be seen, however, whether it will have this desired effect or whether it will simply stimulate technological and military applications of science.

The most obvious effect of the end of the war for workers in the earth sciences has been the pressure to repair, so far as possible, two of the losses caused by the war. Because of draft policies, the education of geologists and geographers in this country virtually stopped during the war years. With demobilization and the return of large numbers of veterans to colleges and universities, the teaching load on dwindled faculties has become enormous. Efforts to repair another loss are affecting even more members of the profession. The reserves of mineral raw materials that were held by private industry in 1939 were greatly depleted by the unprecedented demands of war production. A far-flung search for new reserves of oil and minerals is now under way and the extent of this search is limited more by the availability of trained personnel than by any other single factor. With these competing demands upon their time, it is only a relatively few lucky geologists and geographers who have found the opportunity to return to research projects that were interrupted by the war.

The Division of Geology and Geography has attempted to do its part in the general reconversion from conditions of war toward those of peace. The Chairman of the Division participated in the formulation of plans for an extensive reorganization of the National Research Council in order to meet more effectively the various postwar needs that can be foreseen. The executive committee of the Division considered the desirability of some modification of the scope of the Division's interests and the possibility of increasing the number of societies represented in its membership. The executive committee also studied at some length the operation of the Division's committees and recommended a policy aimed to encourage the establishment of committees that can complete or significantly advance their specific programs within the term of their appointment. Eleven of the existing committees were recommended for reappointment without significant change for the succeeding year; 10 were reconstituted in name, objectives, or membership; and 13 were discharged either because their projects were completed or because their objectives did not seem to lend themselves to concrete formulation.

With other administrative units of the Research Council, the Division assisted in preparation of a program and in the selection of speakers and delegates for the fourth general assembly of the Pan-American Institute of Geography and History, which was to have been held in Venezuela during the year but had to be postponed for unavoidable reasons.

At the request of Mr. Robert H. Randall, United States member and chairman of the Commission on Cartography of the Pan-American Institute of Geography and History, the National Research Council and the American Council of Learned Societies joined in sponsoring two meetings to consider international needs in cartography. Two committees were appointed and prepared reports regarding the interests of the United States in the mapping needs of other nations and the advisability of establishing an international agency for the improvement of basic mapping throughout the world.

A meeting of representaitves of 13 geological societies of the United States and Canada was held in Washington October 12 and 13, under the joint auspices of the Geological Society of America and the Division of Geology and Geography, to discuss facilities for cooperative endeavor among American geologists and to lay plans for future joint activities. A full transcript of the conference was distributed by the Geological Society to officers and delegates of the participating societies. Two committees were appointed to prepare reports suitable for general circulation on the needs not filled by existing organizations and on the purposes and present status of the proposed American Geological Institute.

The Graduate School of the Department of Agriculture requested advice from the Division regarding the desirability of offering graduate work in the earth sciences for geologists and geographers who are employed in the Washington area. Preliminary arrangements were made for a conference of representatives of universities and of government bureaus to discuss this problem.

For some reason geologists and geographers have never taken the interest in the annual post-doctoral fellowships of the National Research Council that has been shown by workers in other fields of science. During the war years, the applications for these fellowships fell off greatly in all sciences. Of a total of 36 applications considered by the Fellowship Board in the Natural Sciences in the spring of 1946 for work during the academic year 1946–47, only one was in the earth sciences. It is a pleasure to report that this single applicant was awarded a fellowship.

More than 2,300 applications were received for the predoctoral fellowships of the National Research Council, which were offered as a special emergency measure in 1945–46. Many deserving applications were rejected because funds were available for only about 200 fellowships. In the field of geology and physical geography, 126 applications were received and 9 fellowships awarded.

During the year the joint geologic-geographic committee on classified maps and data (R. S. Platt, chairman) surveyed the general problem of preserving and making more widely available the great mass of confidential geographic and geologic data assembled during the war. The committee reported encouraging developments and recommended the establishment of a new committee better qualified to watch progress in this field and to help when needed. In accordance with this recommendation, a committee on the declassification and salvage of maps and documents, under the chairmanship of B. W. Adkinson, has been established.

The committee on map sketching from aerial photographs (O. M. Miller, chairman) reports progress in the preparation of a manual of noninstrumental methods for the construction of maps from aerial photographs.

Geology.—The Chairman of the Division assisted in drawing plans for a panel on geology and mineral resources to be set up within the structure of the joint Army-Navy Research Board for National Security. This panel had not been established by the end of the year because of uncertainty regarding the enabling legislation for the Research Board.

The committee to observe effects of detonation of high explosives (J. B. Macelwane, chairman) is a general NRC committee but its purpose—to study seismic and atmospheric effects of large controlled explosions at Arco, Idaho—is of particular interest to geologists. A number of individuals active in the Division partcipated with the committee in the seismic and geologic observations at the time of the large explosions in August 1945.

The Division's committee on the glacial map of North America (R. F. Flint, chairman) completed its project with the publication during the year by the Geological Society of America of the map and an explanatory text. The map, based on compilation of published and unpublished work by members of the committee and many others over a period of several years, represents a great advance over previous knowledge of the Pleistocene glaciation of North America.

The committee on tectonics (C. R. Longwell, chairman) completed its project the year before with the publication by the American Association of Petroleum Geologists of the Tectonic Map of the United States, but the committee has been held in existence to undertake a revision of the map, the first edition of which is nearing exhaustion. The committee is being reorganized for the purposes of this revision. The committee on experimental deformation of rocks (E. B. Knopf, chairman) formulated plans for the encouragement of experimental studies on the mechanics of rock deformation. A paper by the chairman of the committee, outlining problems to be undertaken in the near future, was published in the January 25, 1946, issue of Science. The committee on deformation of the Ross shelf ice (W. H. Bucher, chairman) prepared from aerial photographs a map showing the deformation of the floating ice in this Antarctic area. This deformation closely resembles that of the earth's crust in some mountainous regions and it is hoped that the study may establish relationships that are applicable to general problems of rock deformation.

The committee on stratigraphy (C. O. Dunbar, chairman) continued progress toward completing its series of correlation charts, eight of which have been published by the Geological Society of America and three more of which—on the Ordovician, Mississippian, and Permian—are near completion. The committee on marine ecology as related to paleontology (H. S. Ladd, chairman) is undertaking the preparation of a treatise on marine ecology primarily for the use of paleontologists and is considering some reorganization for this purpose. The report of this committee for 1945 (56 mimeographed pages) was published in December and is available for distribution by the Division. The committee on sedimentation (P. D. Trask, chairman) is likewise planning to prepare a symposum on sedimentation which is intended to supplement and bring up-to-date the well-known Treatise on Sedimentation and Recent Marine Sediments, earlier publications from this committee that are now out of print.

The committee on common problems of genetics, paleontology, and systematics (G. G. Simpson, chairman), a joint committee with the Division of Biology and Agriculture, expects to complete its remarkably successful record of accomplishment within the succeeding year with a symposium that is to be published and with the establishment of a new journal that will serve the needs of this important but hitherto neglected borderland field. Within the year the third primary objective of the committee was attained with the founding of the Society for the Study of Evolution. The annual report for 1945 of the committee on paleobotany (Erling Dorf, chairman) was published in October (20 mimeographed pages) and is available for distribution by the Division.

For more than 20 years, the committee on measurement of geologic time, under the able and energetic chairmanship of A. C. Lane, has led in the encouragement and accomplishment of research in a field that lies along the border between geology and nuclear physics. During the year Dr. Lane resigned the chairmanship because of failing health and his place has been taken by J. P. Marble who for many years has served as vice chairman of the committee.

The committee for the study of Paricutin Volcano (R. E. Fuller, chairman) has continued to encourage and coordinate, with the cooperation of the parallel Mexican committee, a program of research on various aspects of this Mexican volcano which erupted and continued active during the years when geologists and volcanologists were occupied with war work. Most of the field projects sponsored by the committee and supported largely by research grants from the Geological Society of America were completed during the year, thus rounding out a reasonably well-balanced volcanological investigation in spite of the severe difficulties of the time.

At a special conference on training in geology, held December 27 and 28 at the annual meeting of the Geological Society of America in Pittsburgh, the Division was formally requested to organize a committee to stimulate further discussion of this subject at meetings of other societies to be held during the year. A committee on geologic education, under the chairmanship of C. R. Longwell, was accordingly appointed. The committee organized and held well-attended and stimulating conferences at annual meetings of the American Association of Petroleum Geologists and the American Geophysical Union on what if anything ails present methods of geologic education. The transcripts of these discussions have been printed in the interim proceedings of the Geological Society of America. The committee on advice to prospective geology students (C. H. Behre, chairman) had assisted materially in the preparation of a booklet entitled "Geology as a Profession" by Anne R. Taylor, which was published during the year by the National Roster of Scientific and Specialized Personnel. Upon recommendation of this earlier committee, a new committee on an advisory pamphlet for geology students was appointed to prepare a supplementary illustrated booklet on careers in geology. The committee on geological personnel (W. B. Heroy, chairman) undertook, at the request of the Office of Scientific Personnel of the National Research Council, a survey of the enrollment in geology departments of colleges and universities during the spring term of 1946. The committee also plans to undertake a resurvey of the number of geologists employed in industry, teaching, and research, for comparison with the results of surveys made during the war years.

Two new committees, both modeled closely after the committee on borderland problems (T. S. Lovering, chairman), which was active in 1937–38, were authorized near the close of the year; a committee on application of biological methods and data to geologic problems (G. G. Simpson, chairman) and a committee on application of physics and chemistry to geologic problems (J. F. Schairer, chairman).

Geography.—The Vice Chairman of the Division assisted with the preparations for forming the United States delegation to the fourth general assembly of the Pan-American Institute of Geography and History, and at a later stage the committee on Latin American studies (P. E. James, chairman) helped in the selection of delegates and the procurement of papers for presentation. This committee also made plans for the compilation of a list of professional geographers and geographic research agencies interested in Latin America, both in the United States and in the Latin American countries.

The committee on Asiatic geography (G. B. Cressey, chairman) contributed to wartime needs by compiling and furnishing to appropriate agencies lists of geographers with experience or training in Asiatic areas. The chairman carried on an extensive correspondence with geographers in China and India.

The committee on cooperation with the Bureau of the Census (G-H. Smith, chairman) and the committee on cooperation with the Soil Survey (W. E. Ekblaw, chairman) are advisory committees set up at the request of the agencies concerned. There having been no call for their services during the war years, it was decided to discharge these committees with the possibility of re-forming them in the future if the appropriate agencies so desired.

The committee on southern studies (W. E. Ekblaw, chairman) was also discharged as programs in this field had either been discontinued during the war or had found appropriate sponsorship in regional organizations within the South.

One of the most significant geographic committees was that on training and standards in the geographic profession (R. Hartshorne, chairman). This committee assessed the experience of geographers during their wartime employments and pointed out the strengths and weaknesses in their training which were revealed by that experience. This report was considered so significant that permission was requested to publish it in full in the Annals of the Association of American Geographers where it appeared in the September 1946 number.

The committee on geographic research (L. E. Klimm, chairman) in addition to canvassing the need for further work in descriptive climatology served as a coordinating agency for its two subcommittees. The subcommittee on census of professional geographers (W. L. G. Joerg, chairman) reported on the valuable work done during the war in searching out and listing the trained geographers of the country and making that census available to the various governmental agencies. Approximately 800 persons were found to have some training in the field and about 287 had acquired doctorates in geography or related subjects up to 1943. The chairman, with the permission of the National Research Council, reported the results of the work of the subcommittee to the meetings of the Association of American Geographers in Columbus, Ohio, in December 1946. The subcommittee on geographical research in New York State (E. H. Faigle, chairman) reported no activity during the war years and was discharged.

DIVISION OF MEDICAL SCIENCES

(Lewis H. Weed, chairman; George B. Darling, vice chairman)

The Division of Medical Sciences during the year just completed has functioned largely by reliance upon divisional committees and at the same time has supported the activities of certain interdivisional committees which more and more come to represent the problems of concern to the Research Council, as the assembly of competent advice very frequently involves more than one discipline of science.

During the year, the Medical Fellowship Board has assumed additional duties. In addition to the regular fellowships in the medical sciences, which have been awarded for the past quarter century, the Board has dealt with fellowships in internal medicine (Welch fellowships), in virus diseases, in orthopedic surgery, in anesthesiology, and and in pediatrics. Because of these enlarged responsibilities, the

Fellowship Board was reorganized at the time of the annual meeting so that the various problems of fellowship award could be adequately handled.

The work of the Division during the year has very clearly defined itself into two main groups of activities. In the first group of activities are those functions carried by the division for civilian agencies, such as the philanthropic foundations and national societies. The second group of activities have been those related to the performance of advisory functions for Federal departments. The year has witnessed a marked growth in the scope of undertakings for the civilian group; and in the second category of activities, there has been a similar enlargement of responsibilities. While during the war years the Division devoted itself almost entirely to services pertaining to the emergency, these activities have not ceased with the end of the war but have continued uninterruptedly. This has been a great surprise to the officers and members of the Division, as it was expected that the many committees originally appointed to serve in an advisory capacity to the three Surgeons General and somewhat later to the Committee on Medical Research, Office of Scientific Research and Development, would largely find their work completed soon after hostilities ended. However, the requests for professional advice from competent government agencies have continued, and the Division now faces reorganization of its committees to meet the peacetime needs of the Federal services.

The greatest civilian activity of the Division during the year was concerned with the inauguration of the work of the Committee on Growth, which acted as adviser in research to the American Cancer Society. The committee assumed broad responsibilities in planning and supervising the program of research in the various fields pertinent to a fundamental attack upon the problem of atypical growth.

During the year, a larger number of conferences were held in order to give specific answers to problems presented largely by the Federal services. These conferences dealt with a variety of problems, from the use of penicillin in veneral diseases to consideration of streptomycin, disinfection of water, dermatophytoses, effects of atomic energy, and so forth.

The annual meeting of the Division was held on April 27, 1946. This meeting was the first held by the Division for 2 years, inasmuch as in 1945 restrictions on travel and the uncertainties regarding future activities prevented holding the meeting last year. The Division considered the appointment of long-term continuing committees and authorized the chairman to reorganize such committees as would be needed to meet future responsibilities. At the meeting, it was decided to discharge all of the wartime advisory committees, most of which had been in continuous service for the 4 years of the emergency.

Medical Fellowship Board.—The American Society of Anesthesiologists, on September 19, 1945, formally proposed that the Council through its Medical Fellowship Board administer not less than $12,000 for research fellowships in the field of anesthesia; the fund to be expended over a period of 3 years or less. With the approval of the executive committee of the Council of the National Academy of Sciences, this responsibility was accepted. Announcement of the new series was made in October 1945, when the information concerning other fellowships offered by the Board was circulated. In addition to the original sum, a supplementary payment of $1,000 was made in January 1946, bringing the total amount available for fellowships in anesthesiology to $13,000. Two anesthesiologists have been designated by the American Society of Anesthesiologists to act in an advisory capacity on requests in this field. The Board votes on applications after obtaining from these consultants opinions regarding the qualifications of the applicant.

In response to a request for further support of the fellowship program in virus diseases and orthopedic surgery, the National Foundation for Infantile Paralysis, Inc., on February 21, 1946, advised the offices of the Council that an appropriation in the amount of $100,000 had been made. The grant was made available for the 2-year period ending December 31, 1947. In addition to continuing the series of regular fellowships in orthopedics and virus diseases, established in 1941, this appropriation provided for a new and more advanced group of senior fellowships in orthopedic surgery, virus diseases, and pediatrics. Like the Welch fellowships in internal medicine, the senior fellowships carry stipends ranging from $3,000 to $6,000 per annum over a period of 3 years, as well as an annual laboratory expense account of $1,000. These new fellowships were announced early in March 1946, and interim applications are being considered during the year 1946.

With the end of the war, requests for information concerning fellowships were received in large number throughout the year; more than 400 inquiries reached the central office during the current reporting period. Wherever practicable, interim consideration has been given to applicants upon request.

In view of the added responsibilities accepted by the Board during the year, it was recommended, at the annual meeting of the Division, that the group be enlarged by the addition of new members in the clinical fields. The Division approved the reconstitution of the Board with the appointment of 10 members, 5 from clinical branches and 5 from the preclinical field.

Committee on the American registries of pathology.—The registries have continued to be active both in civilian and in Army fields. With the establishment of the registry of gerontology in April, the number of active registries was increased to 14. In addition, it has been proposed that a registry on tumors in juveniles be initiated.

Sets of slides in the fields of tropical diseases, hematology, kidney, and surgical pathology, were added to the loan collection during the year. The dental-oral, dermatology, gynecology and genito-urinary sets were revised. Several of the atlases issued under the auspices of the registries were reprinted or revised. A new atlas, on tropical medicine, was published and is now greatly in demand.

Grants in support of the registries have been made by the American Academy of Ophthalmology and Otolaryngology, the American Dental Association, the American Veterinary Medical Association, the Gerontological Society, Inc., the American Broncho-Esophagological Association, and the American Cancer Society.

With the reorganization of the American Registry of Pathology now in progress, the relationship of the Council's committee to the registry will change materially. The Director of the Registries is to be appointed by the Surgeon General in conference with the committee, and at the request of General Kirk, the Academy-Council will act as fiscal agent for the registries. With these added responsibilities, it was felt that a new committee, having intimate connection with the registries, should be established. Following approval of the officers of the Research Council, the Committee on the American Registries of Pathology was reconstituted, with Dr. Howard T. Karsner continuing as chairman.

Advisory committee on drug addiction.—This committee has been relatively inactive over a period of several years. In the spring of 1946, however, it was necessary for the group to hold several meetings, at the request of the Commissioner of Narcotics, to give advice regarding the licensing and testing of drugs. Two drugs which were captured in Germany are being studied at this time, as well as problems relating to the manufacture and patenting of drugs recently developed in this country.

Committee on research in endocrinology.—Fourteen investigations were supported by the committee in 1945–46; nine of these were extensions of previous grants, and five were new appropriations. Despite the small number of projects, substantial progress in the field has been reported by grantees.

Three investigators have studied the formation of thyroid hormone by use of radio-iodine and of thiourea and related substances; results of value in the further synthesis of compounds for use in human hyperthyroidism have been obtained. A search for inhibitors of adrenal cortical function has yielded highly encouraging results in the case of three compounds. Continued follow-up study of 158 cases of Addison's disease indicates that new methods of treatment have caused a decline in mortality rate from 80 to 95 percent to 46 percent; the recent synthesis of dehydrocorticosterone gives promise of still greater reduction. Three extensive chemical studies on the metabolism of steroid hormones were supported, and work on the problem of prostatic cancer was continued. Observations on the effect of alloxan on the endocrine system were made. An inquiry into the relationship between the endocrine and hematopoetic systems led to discovery of a method for correcting anemia in hypophysectomized animals. Studies on the *in vitro* action of hormones, the histochemistry of the endocrine organs, and the control of the ovulatory mechanism are also in progress.

During the year, the John and Mary R. Markle Foundation appropriated $50,000 in support of the activities of the committee in 1946–47.

At the annual meeting of the committee on April 26, 1946, grants were made to 19 investigators, and 1 interim application was approved in May 1946. The budget for 1946–47 calls for expenditure of $47,185, of which $2,500 is allocated to administration and $44,685 is assigned to the 20 research grants. This represents a marked increase over the 1945–46 budget of $30,130.

Committee on growth.—During the period under report, the activities of the committee on growth developed and attained full energy. At the first meeting of the full committee, held on October 13, 1945, arrangements for establishment of a central office in the Council and for appointment of panels were made. The office was promptly constituted with Dr. Philip S. Owen as executive secretary of the committee, and with Dr. William R. Duryee as technical associate. During the spring Dr. Joseph Ney was added to the staff as an associate to Dr. Owen on a part-time basis. Nineteen panels, each consisting of a chairman and four or five members, were appointed, and the committee was fortunate in being able to secure the enthusiastic services of the outstanding leaders in the various fields. These panels were grouped together in four main divisions—physics, chemistry, biology, and clinical investigations—with an additional division set up to handle fellowships. The panel chairmen were asked to elect one of the group as divisional chairman. The panels held many meetings during the year and planned a wide approach to the problem of cancer, involving physics, biophysics, biochemistry, physiology, pathology, clinical medicine and surgery, genetics, botany, etc. Recommendations for support of research were made to the main committee by the panels after examination of proposals from various competent individuals in universities and research institutes. The recommendations emanating from the panels were then acted upon by the committee on growth or by its executive committee; and final recommendations from the Council's organization went to the executive committee of the American Cancer Society. Fellowships were considered by the panel groups and by the members of the Division of Fellowships. As a result of the deliberations and activities of the committee on growth and its subsidiary mechanisms, a research and fellowship program aggregating $800,000 has been adopted and financed by the American Cancer Society.

It has generally been accepted that the committee on growth under the leadership of Dr. Cornelius P. Rhoads established an enviable record during its first year of existence. The experience of the year, however, indicated certain administrative shortcomings in the organization; and during the next year (1946–47) the committee will be enlarged to 20 members, with definite terms of appointment up to 5 years. Such a reconstitution will provide a gradually changing membership, but will maintain the essential experience of the group as a judical body, determining general policies and allocation of support in the various disciplines. Under the main committee will be set up the four sections already functioning in physics, biology, chemistry, and clinical research, together with a new section of chemotherapy. Fellowships will be handled by a section on fellowships especially constituted for evaluation of the candidates. The sectional chairman, together with the chairman of the committee on growth, will constitute the executive committee, which will evaluate the proposals for research support after recommendation by the appropriate panels. The divisional chairmen will not be chairmen of panels.

The success of the annual campaign of the American Cancer Society this spring indicates that a sum of money considerably in excess of $800,000 will be available for support of the program of basic and clinical investigation during the next year.

Committee for research in problems of sex.—On April 3, 1946, the trustees of the Rockefeller Foundation appropriated to the Research Council a sum not to exceed $120,000 for support, through the committee for research in problems of sex, of the work of Dr. Alfred C. Kinsey at Indiana University. The conditions of the grant provide for the determination by the committee of an annual budget for the project up to $40,000 per year, over a period of 3 years, beginning July 1, 1946. This action will make possible the effective development of the program in the field of human sex behavior, and will release funds from the current appropriation for the continued subsidy of other worthy projects.

At the annual meeting on April 25, 1946, the committee awarded 13 grants-in-aid of research for 1946–47. Subsequently, two interim applications were favorably considered, so that 15 investigations will be supported by the committee during the coming year. The budget for 1946–47 involves the expenditure of $66,100 for research and $2,500 for administration, or a total of $68,600. Of this amount, $35,000 was granted to Indiana University in support of Dr. Kinsey's studies.

Office of Medical Information.—During the year the Office of Medical Information has continued to aid and support in a very useful way many of the diverse activities of the Division. The Division has been very fortunate in having Gen. James C. Magee, Dr. Sophie D. Aberle, and Miss Lois Stice on the professional staff, together with competent technical aid. In midwinter, one very important publication was issued by the Office—a Report on the Medicinal Treatment of Filariasis Bancroftii, by Dr. Owsei Temkin.

The Office of Medical Information has been maintained for 3 years by grant of $75,000 from the Johnson and Johnson Research Foundation. Unfortunately, the Foundation was unwilling to renew this grant, and as a separate enterprise in the Division, the Office will cease on June 30, 1946, though minor activities will be carried on during the summer.

The Office of Information demonstrated during its 3 years of existence that such services as the staff rendered are most important to the work of the many divisional advisory committees. In modified form this informational section will be continued under other auspices within the Division; its coverage of medical information will be changed in order to meet the increasing demands of the committee on growth and other committees within the Division. The relationship of the Office of Information to the Records Section of the Division has always been very close; and inasmuch as the committee on medical research has requested the Division to keep intact the large indexed file of reports, documents, minutes, and so forth, accumulated during the war, technical control of the store of materials will be continued by certain of the staff previously in the Office of Information. In this way, it is thought that the splendid work of the Office during the past 3 years will proceed; the activity will not be abandoned and the materials will be available to competent workers.

Committee on medical problems of civil aviation.—During the year, the committee completed the revision of the physical standards for civilian aviators, and a comprehensive report was submitted to the Civil Aeronautics Administration. The report represented a very thoughtful and intelligent approach to the whole problem and should serve as a standard for future decisions. With the funds available to the committee, the investigation on crash injuries conducted by Mr. Hugh DeHaven was financed for a period of 3 months. This project was carried on at Cornell University Medical College and has demonstrated its great usefulness to aviation. The project will be continued under other financial arrangements and will be directed by a newly constituted committee on aviation medicine.

Because of the fact that the committee has largely completed the tasks assigned to it by the Civil Aeronautics Administration, the members were relieved of further duties as of June 30, 1946, and the committee was considered as discharged.

Interdivisional committees.—The Division of Medical Sciences has continued to cooperate in the activities of the following committees:

A. Food and nutrition board (under the auspices of the Division of Biology and Agriculture).

B. Committee on food habits (under the auspices of the Division of Anthropology and Psychology).

C. Board for prosthetic and sensory devices (under the auspices of the Division of Engineering and Industrial Research).

At its meeting, April 27, 1946, the Division approved the continuation of these committees under the present jurisdictional authorities. The committee on genetics of pathogenic organisms was discharged.

Committees on military medicine.—The Division of Medical Sciences can now report completion of 6 years of continuous activity in the general field of war medicine. With the cessation of the war in Europe and in Japan, the emergency services of the Division were considered to be fulfilled and the many committees which had been continued throughout the year were discharged as of June 30, 1946.

These committees were originally appointed as consultative groups to the three Surgeons General, the first two committees being established in May 1940. The number of committees has varied according to need, but most of the main committees, some 14 in number, have remained as continuing groups throughout this period. While initially appointed to act for the three Surgeons General, the committees were used by such agencies as the health and medical committee, established in 1940, and a year later their consultative functions were largely devoted to the committee on medical research in relation to the scientific program in medicine. The contractual arrangements between the Academy-Council and the Office of Scientific Research and Development have called for the submission of reports, holding of committee meetings, and the evaluation of research. Throughout this period of years, the relationship between the committees of the Division and the committee on medical research has continued to be close, cordial, and cooperative. Many of the committees naturally had heavier burdens to carry than did other groups, but all in all, the work of all of the committees can be commended in highest terms.

As one looks back upon the activities of the many committees, one may recall the many recommendations which have gone to the committee on medical research, to the three Surgeons General, to the War Production Board, to the War Food Administration, to the Veterans' Administration to the Selective Service System, and to other Federal agencies. These recommendations usually followed the submission of definite requests from the Government agencies for professional or research advice and the Federal departments apparently relied upon this advice in making their decisions.

The immediate financing of the various activities of the committees has largely been dependent upon the revolving fund of $60,000 given to the Council by the John and Mary R. Markle Foundation in 1941. Without such support from the Markle appropriation, the responsibilities of the Division could not have been carried out so effectively because of the nature of Federal contracts, involving reimbursement after expenditure. During the 5 years when the fund was available, some attrition has occurred, but the executive officers of the Council have been very successful in maintaining the integrity of the body of the fund. Because of the continued usefulness of this revolving fund, the John and Mary R. Markle Foundation voted this spring to leave the fund in the hands of the Division for such purposes as the Division wished to make of it. Not only will the fund serve in the future in its revolving capacity to finance immediate expenditures dependent upon reimbursement, but it will enable the Division to subsidize certain research undertakings over a period beyond current appropriations by outside philanthropic organizations. The fund will therefore continue to be useful in enabling the Division to carry out its responsibilities in relation not only to Federal activities but also to civilian undertakings.

The extent of the activities of the Division in regard to the war effort may be judged by the following summary of meetings: During the year, the advisory committees of the Division held 70 meetings and 20 conferences with a total attendance of 2,808. Over the 6-year period (1940–46) the advisory committees on war services held a total of 723 committee meetings, as well as 243 conferences. In order that the deliberations of the committees might be recorded and conclusions made available in the form of reports to appropriate agencies and individuals, wide distribution of materials from the Division has been necessary. Thus, during the 6 years of activity, 9,086 separate documents were distributed; this involved a total of 703,102 copies. The peak load of distribution occurred in January to March 1944.

With activities in the war services so diverse and all inclusive, it is impossible to speak of the achievements of any particular groups. However, during the past year certain activities of these advisory groups have been of particular significance, and it seems desirable to mention these aspects of the Division's work. At the request of Surgeon General Norman T. Kirk, the committee on pathology studied the future requirements of the Army Institute of Pathology. The committee for this purpose added certain broadly interested pathologists to the group and divided up the work among the members. The various recommendations of individuals were then considered by the committee as a whole and a final report submitted to the Surgeon General of the Army. The report was extensive and dealt with considerations of the present and future activities of the institute, the relationship to the future Graduate and Research Center of the Army Medical Department, the physical plant needed, and the inclusion of the American Registry of Pathology as a continuing function. The report was accepted by the Surgeon General with only minor modifications of the recommendations, and was used by the Surgeon General as a basis for the development of the plans for the future institute.

Another activity of paramount importance was handled by the Division on an ad hoc basis. The Division was requested by Surgeon General Kirk, with the complete concurrence of the Surgeon General of the Navy and of the Chief Medical Officer of the Veterans' Administration, to consider the problem of follow-up study of war casualties, originally in Army and Navy hospitals and later transferred to the hospitals of the Veterans' Administration. A special committee, under the chairmanship of Dr. Edward P. Churchill, undertook to organize the necessary study of the problem; the committee was aided by General Kirk, who released Col. M. E. DeBakey and Capt. G. W. Beebe for the purposes of the investigation. The report when finally prepared was a thoroughly competent document and its findings looking to the continuing study of these cases and to the opportunities for clinical research in the veterans' hospitals were accepted as a basis for further procedure.

One further achievement within the Division requires comment in this annual report. The committee on gas casualties, under the chairmanship of Dr. M. C. Winternitz, completed three large fasciculi on chemical warfare medicine and submitted the volumes to the committee on medical research. The three volumes were devoted to the following topics: (1) Eye, (2) respiratory tract, and (3) skin and systemic poisons. These volumes contain confidential materials and will not be available for unrestricted use.

Some idea of the value of the work of the various committees to the Federal agencies can be gained from the fact that the Division's advisory services have been requested by Federal agencies to continue into the peacetime period from July 1, 1946. Although all of the committees on military medicine have been discharged as of June 30, many of them will be reconstituted for service during the ensuing year. A general over-all contract for advice in the many fields of medicine will be executed between the Academy-Council and the War Department for the Surgeon General of the Army, the Navy Department for the Surgeon General of the Navy, and the Veterans' Administration for the Chief Medical Officer. Similarly, the Academy-Council will undertake, for the Veterans' Administration, the establishment of a central administrative office for follow-up studies and for clinical research and will handle funds of the Veterans' Administration, to be devoted to research within veterans' hospitals. Likewise, the services of the Division will be required during the next fiscal year in the field of aviation medicine, where a separate contract will provide advisory services to the Air Surgeon and to the Chief of the Division of Aviation Medicine, Bureau of Medicine and Surgery, United States Navy. This desire on the part of Federal services for continuing advice from the Division can only be interpreted as a tribute to the services of the 400 medical scientists who gave so freely of their time and abilities during the war period.

Much of the energy of the Division during the past year has been devoted to the conclusion of the advisory services in military medicine, but the continuing peacetime activities of the Division have been carried forward and new enterprises have been initiated. The extent of the divisional work has, however, been so great that only by appointment of full-time administrative officers can the work go forward with any promise of success. It is hoped, therefore, that the Division may continue to function effectively in even broader fields where its advice regarding the expenditure of large sums of money will be sought by civilian and Federal agencies.

In conclusion, the chairman would again record the debt which the Division owes to the members of its many committees. It is a great contribution which medical scientists make each year to the work of the Division. This contribution has been of utmost importance to the war effort in medicine; it will be of equal importance in furthering the peacetime responsibilities of the Division in providing the best of scientific advice for future Federal and private programs in medical research.

DIVISION OF BIOLOGY AND AGRICULTURE

(ROBERT F. GRIGGS, chairman; REMINGTON KELLOGG, vice chairman)

Agricultural Board.—The Agricultural Board has continued its activities concerning feed composition, training of research workers, and veterinary services for farm animals, and has extended its field of interest to include a survey of data on the problems of the Cotton South, a study of the production and distribution of milk, the maintenance of plant and animal stocks, and an inquiry into the question: "What kind of agriculture does America need?" Meetings were held by the Board in July 1945 and January 1946.

The committee on animal health held a meeting in December at Chicago. Reports have been published by three subcommittees:

Report No. 4 of the committee, Review of Bloat in Ruminants, was published in the August 1945 issue of the journal of Animal Science and reprinted as No. 124 in the NRC reprint and circular series.

Report No. 5, The Intramammary Therapy of Bovine Mastitis, which was published as No. 125 in the NRC reprint and circular series, was prepared by the subcommittee on mastitis, consisting of R. G. Little, chairman; S. C. Bryan; W. E. Plastridge; and O. W. Schalm. This report also appeared in the March 1946 issue of the Journal of the American Veterinary Medical Association and was subsequently reprinted in four other periodicals.

Report No. 6, Rabies and Its Control, appeared in the May 1946 issue of the Journal of the AVMA and is being published as No. 126 in the NRC reprint and circular series. It was prepared by the subcommittee on rabies, consisting of H. N. Johnson, chairman; A. L. Brueckner; Karl Jabel; R. A. Kelser; H. W. Schoening; and T. F. Sellers.

A subcommittee on the public health aspect of brucellosis is in process of organization.

If funds can be secured, the committee on animal health plans to sponsor grants-in-aid for prosecuting investigations in the following: Milk secretion and mastitis; calf scours and pneumonia; losses in young pigs; and brucellosis control in animals and man.

George H. Hart has resigned as chairman of the committee. He is succeeded by W. A. Hagan, of Cornell University.

The committee on animal nutrition published during the year two reports, report No. 4, Recommended Nutrient Allowances for Beef Cattle, and report No. 5, Recommended Nutrient Allowances for Sheep. All five reports of the committee have been reprinted, totaling more than 20,000 copies. The subcommittee on poultry nutrition held a meeting to consider revision of the nutrient allowances for poultry, based upon findings that have been obtained since the original report was published. These findings will be incorporated in a revised report.

Report No. 6, Nutrient Allowances for Horses, is in preparation.

The committee on feed composition received a grant of $18,000 from Swift & Co. with which to initiate its program and carry it two-thirds toward completion. The committee plans to assemble all available material on the composition of all feeding stuffs of importance where such exists and to stimulate analyses of such items as are needed to complete the tables. Frank E. James has been retained as executive secretary, with offices and a staff at the National Research Council.

The committee on plant and animal stocks held a conference on January 12 to discuss problems relating to the collection, preservation, and exchange of plants of economic importance. The conference adopted a resolution stressing the importance of an international conference to consider the entire problem of preservation of plant and animal stocks and the eventual implementation of a stock-maintenance program on a world scale. This resolution was subsequently adopted by the Agricultural Board and transmitted to Sir John Orr, Director General of the United Nations Food and Agriculture Organization, by Dr. Harrison. Sir John planned a world conference on the subject.

The committee on plant and animal stocks was subsequently made a permanent part of the Agricultural Board and participants in the conference were appointed members.

Consultants of the committee have been appointed by the following societies: Mendelian Society of Sweden, Italian Society of Genetics and Eugenics, Genetical Society of Great Britain, Dutch Genetical Society, and Swiss Society of Genetics.

A committee on the production and distribution of milk under the chairmanship of Dr. W. E. Krauss has been set up jointly by the Agricultural Board and the Food and Nutrition Board to study legislative requirements and restrictions that do not provide an adequate return, regional competition, and monopolistic practices in specific milksheds. A report of the activities of the committee is included with that of the committee on milk of the Food and Nutrition Board.

The committee on the training of research workers in agriculture met on June 27, 28, and 29. A report was prepared based on a canvas of Government departments and agricultural institutions to determine the needs and expectations for better-trained research workers in agriculture. The need for fellowships in agriculture in order to encourage students in this field was stressed. The report appeared in the bimonthly report of the Division.

The committee on veterinary services for farm animals has initiated several important projects. Statistics are being collected and summarized on losses resulting from mortality and morbidity of farm animals, and a report will be prepared. A meeting was held in December and a resolution was passed by both the committee and the Agricultural Board that the committee attempt to stimulate a project in cooperation with the Office of Experiment Stations looking toward direct survey of farms to obtain first-hand statistics on this subject.

The subcommittee on training of veterinarians held a meeting April 1 to discuss the problem of supply of veterinarians. A subcommittee was appointed to conduct a survey of veterinary colleges, medical schools, and other institutions to ascertain the extent of the need for veterinarians with graduate training beyond the professional degree. A survey of fellowships available will be included. Another subcommittee is studying possible sources of revenue for an accelerated program of veterinary training.

The subcommittee to study laws and regulations on animal health has been organized, with Dr. W. J. Loeffel as chairman. Plans have been completed for a meeting July 15.

Committee on fellowships.—Recommendations were made concerning 12 applicants for National Research Council fellowships in biology, and of these, six were awarded fellowships.

Committee on human heredity.—Under grants administered by this committee, important researches have been made on the heredity and racial distribution of the Rh blood types, and several papers have been published; investigations have been made on inheritance of cerebral rhythms, using electroencephalograms of both epileptic and non-epileptic twins and of relatives of epileptics; data have been collected and tabulated to determine what trends appear in the direction of the congenital loss of teeth by modern man; studies have been made on similarities and differences in hair pigmentation of identical and fraternal twins.

Committee on research in comparative physiology under natural conditions.—A conference of physiologists was held at the National Academy Building on April 26 to discuss the creation of a committee on physiological research upon animals under natural conditions. It was agreed that research is needed upon established native races so as to show significant physiological adaptations to clear-cut environmental factors, and that such research would be an essential part of the scientific basis for participation in world affairs. In order to have adequate material for study, it was felt that the preservation of natural environmental conditions should be encouraged.

The conference recommended that a committee be set up to review and approve programs for research; to seek cooperatiion of Government services, which would facilitate research by providing transportation and outlying bases of operation; to seek cooperation of agencies concerned with the improvement of international relations, whose programs would be aided by the international character of this type of research; and to obtain funds for the furtherance of specific programs of research. Accordingly, in June a committee was appointed with Dr. Laurence Irving as chairman.

Committee on the Naples zoological station.—The function of the committee of which Dr. Ernst Scharrer is chairman, which was appointed in June, will be to review applications for occupancy of the research table at Naples and to foster the other interests of the station.

Deterioration prevention center.—The deterioration prevention center was established at the National Research Council in December through the acceptance of a Navy contract by the National Academy of Sciences. This project is a continuation of the work previously performed under the Office of Scientific Research and Development. The functions of the center are:

(1) To establish and operate a center for the armed forces. The purpose of the center is to collect information from Government, industrial, and academic institutions on problems of prevention of deterioration of matériel and to make such information available in readily usable form.

(2) To maintain personal contact with work on prevention of deterioration of matériel that is being done by all agencies.

(3) To serve in a consulting and advisory capacity on deterioration prevention problems.

(4) To conduct certain studies in this field.

The following nine subcommittees have been approved by the Joint Army-Navy Deterioration Prevention Committee: Corrosion; electrical and electronic equipment; fungicides and germicides; optical instruments; packaging; plastics and plasticizers; photographic equipment and supplies; test methods; and textile and cordage.

The center's technical team, composed of an organic chemist, a physical chemist, a physicist, a biochemist and a biophysicist, work with these subcommittees on research and development problems.

The following reports have been prepared and distributed:

(1) Prevention of Deterioration Abstracts, volume 1, pages 1–223. These are abstracts of reports concerned with deterioration problems and replace the Tropical Deterioration Bulletin which was prepared under the OSRD. The abstracts are set up under the following headings: "Electrical and electronic equipment"; "Finished assemblies"; "Fungicides"; "Lacquers, paints, and varnishes"; "Leather"; "Lubricants"; "Metals"; "Micro-organisms"; "Miscellaneous"; "Optical instruments"; "Packaging"; "Paper"; "Plastics, resins, rubbers, and waxes"; "Storage"; "Textiles"; and "Wood." Each time a lot of abstracts is distributed, a cross reference sheet is included to enable all the material on any one subject to be found readily among the abstracts. Comments by personnel of the center are added to many of the abstracts, attempting to evaluate reports, to make suggestions concerning further needed research, or to relate a specific report with other relevant ones.

(2) Subject and author indexes for the Tropical Deterioration Bulletin and supplements.

The center has loaned or supplied for retention a large number of reports in this field to all armed forces, as well as other authorized agencies.

Food and Nutrition Board.—As a result of the termination of hostilities and the expiration of the contract between the Food and Nutrition Board and the War Food Administration, the Board has been reorganized on a peacetime basis. At the November 30–December 1 meeting of the Board, a steering committee was appointed and authorized to act in bringing about this reorganization. After three meetings of the committee, the following organization plan was adopted:

There will be a maximum of 24 Board members. Former Board members and members of committees will form a group of consultants to be known as panel members. Government agencies concerned with food and nutrition will be asked to name liaison representatives to cooperate with the Board.

The following will be standing committees: Steering, food and subsistence research, cereals, institutional feeding, diagnosis and pathology of nutritional deficiences, maternal and child feeding, medical nutrition, dietary allowances, milk, fats, nutrition of industrial workers, food composition, nutrition surveys, food economics, nutritional aspects of aging Protein foods.

In addition there will be the following special committees: Milk production and distribution (joint committee with Agricultural Board), survey of literature on dental caries, Puerto Rican nutrition.

The Board began its new program under a new executive secretary, Dr. LeRoy Voris. Dr. Voris has been for 4 years in the Army, where he was nutrition officer with the Sanitary Corps. Prior to this experience, he was professor in the Institute of Animal Nutrition at Pennsylvania State College.

At the first meeting of the reorganized Board, May 10–11, committee chairmen outlined plans for committee activities. These programs are based on long-term planning for far-reaching nutritional benefits.

The Board, at the request of the Surgeon General, recommended certain revisions in the articles of the Geneva Convention relative to food rations for prisoners of war.

At the same meeting the Board considered a request from the Nutrition Programs Branch, food distribution programs, Production and Marketing Administration, for an interpretation of the famine situation from the standpoint of its effect on the health andwell-being of people in different parts of the world. The Board's report took up the question from four aspects: Notes on the world famine situation; the effects of curtailment of food for consumption in the United States; certain recommendations as to means of making available greater amounts of food for export; classification of food consumption levels on the basis of their relations to health, well-being, and capacity for work.

The committee on cereals.—Committee members presented the views of the Board at Federal Security Agency hearings on definitions and standards for corn products, including enriched corn products.

The committee on dietary allowances.—After thorough consideration of all available information on the subject, this committee revised the recommended dietary allowances. The revised table was published in November and, because of its popularity, was reprinted in March and again in August.

The committee on food composition.—The tables of food composition, revised three times in the past 2 years, were published in December as a joint publication of the Bureau of Human Nutrition and Home Economics and the National Research Council. These tables contain data, in terms of 11 nutrients, on 275 food items, expressed on both the 100 gram and the pound basis. Tables of large-scale cooking losses have been prepared from tests made on various items in the Army diet. A special project on losses in quantity cooking of vegetables, carried on at the Pentagon Post Restaurant, was completed in June, and the results appear in a mimeographed table. All these projects were carried out at the request of the Office of Quartermaster General and were made possible by grants from that office.

The committee on milk.—A resolution urging wider utilization of nonfat dry milk solids, and recommending a 3- to 5-year program of education to this end, was adopted at the November 30–December 1 meeting of the Board. On June 10–11, members of the committee on milk and of the joint committee on milk production and distribution, and representatives of the industry and of interested agencies, attended a meeting at the National Research Council. Three resolutions were adopted, recommending:

(1) That arrangements be made for review, analysis, and interpretation of the experience to date with the distribution of dried milk and for providing information that would be helpful in promoting increased consumption of dry milk solids in all foods that would be nutritionally improved by such solids.

(2) That a demonstration-type experiment involving the use of dry milk be planned for Puerto Rico and be sponsored by the committee.

(3) That an area in this country be chosen for a demonstration similar to that planned for Puerto Rico.

The committee on nutritional aspects of ageing has completed its studies, covering a period of 3½ years, on the comparative effects of nutritional variations on the young and on the old. The findings are to be published.

Publications of the Food and Nutrition Board:

Recommended Dietary Allowances, revised 1945: NRC Reprint and Circular Series, No. 122.

The Nutrition of Industrial Workers: National Research Council Reprint and Circular Series, No. 123. Second report of the committee on the nutrition of industrial workers.

The Nutritional Improvement of White Rice, M. C. Kik and R. R. Williams. NRC Bulletin No. 112.

Tables of Food Composition in Terms of 11 Nutrients: Miscellaneous Publication No. 572, United States Department of Agriculture, in cooperation with the National Research Council.

Joint committee on forestry with the Society of American Foresters.—The report upon which the committee, and especially its chairman, Dr. Henry S. Graves, has been working for more than 2 years has been completed and the book will be published by the Society of American Foresters in October. In preparing this study, the objective of the committee has been to review the progress in various fields of forestry and to determine and interpret problems that are not already receiving attention, with a view to strengthening foundations for planning to meet postwar and subsequent conditions. The findings of this notable report are presented in five sections: I. The Forest Situation in the United States; II. Public Responsibilities and Action in Forestry; III. Problems of Private Forests; IV. Public Action in Advancing Forestry on Private Land; V. Education and Research in Forestry.

Joint committee on wildlife.—An extensive survey of projects in the wildlife field that should be given attention during the postwar period has been conducted by the joint committee on wildlife of the National Research Council and the Wildlife Society. The survey resulted in a comprehensive report, Some Wildlife Jobs Awaiting Attention. In addition to appearing in the bimonthly report of the Division, it was submitted to the Select Committee on Conservation of Wildlife Resources of the United States House of Representatives.

Microbiological board.—A conference to discuss the desirability of establishing a Microbiological Board, analogous to the Food and Nutrition Board and the Agricultural Board, was held at the National Research Council on September 17. The group of microbiologists attending was strongly in favor of such a board. As yet neither an executive secretary nor the necessary funds have been obtained.

DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

(Walter R. Miles, chairman; F. H. H. Roberts, Jr., vice chairman)

In times of national emergency the need for factual knowledge on the capacities and behavioral tendencies of the human being becomes critical in connection with many practical problems. During the World War II the Division of Anthropology and Psychology carried its share of the work load undertaken by the National Research Council for governmental and civilian agencies. That the Division was able to bring its war projects to successful and useful conclusions was due to the spirit of the many participating members of our sciences and is indicative of the value of cooperative activity.

To meet the changing conditions produced by the transition from war to peace and increasing responsibilities for work undertaken by the Council, the Division, at its annual meeting on April 20, 1946, recommended that the vice-chairman be asked by the chairman to accept fuller responsibility for activities falling within the former's discipline; and that the vice chairman be an ex-officio member of all divisional committees. It was also recommended that the executive committee of the Division be instructed to study the problems of methods of appointing divisional members and of proportional representation between psychology and anthropology.

Most of the Division's committees are being continued while the Division is undergoing reorganization of its prospective program. The most conspicuous exception is the emergency committee in psychology, which ceased its work on December 31, 1945, and was dismissed. This committee had large responsibilities and met frequently early in the war but during the last 2 years of its existence found it necessary to hold but three meetings of the committee as a whole.

A brief general report on the main activities and current objectives of the other committees of the Division is given under their respective committee names in the following paragraphs.

The committee on African anthropology is the only formally constituted body in the United States with scientific aims fairly analogous to those of the International African Institute. A project is nowunder way to list films descriptive of African life for circulation among anthropologists as teaching aids for courses in general ethnology or on the ethnology of Africa.

Committee on anthropology of Oceania.—The Division, through its committee, took an active role in furthering the large and highly successful Pacific Science Conference held by the Council on June 6–8, 1946. The stated objectives of the conference were: To form an effective organization of American scientists interested in the Pacific, to encourage and assist scientific research and activities in the Pacific area, and to further international cooperation along these lines. Plans are under way to reconvert this committee in accordance with the recommendations of the conference.

Committee on child development.—This committee continues its long established close relation to the Society for Research in Child Development and publications in this field. The first meeting of the society since 1940 was held in St. Louis on March 29, 1946. The attendance, considering difficulties encountered in traveling, was very large and the interest shown was most gratifying.

Committee on classification of military personnel advisory to The Adjutant General.—This committee was recommended for continuance until such time when further developments in the program of the agency served may indicate what action should be taken.

Board on Clinical Psychology Advisory to the Surgeon General of the Army.—This Board has been recommended for continuance in its advisory relations to that office under which some four hundred clinical psychologists have been serving the needs of the Army.

The committee on fellowships, probably due to the displacements of the war, had no applications for postdoctoral fellowships in psychology or anthropology within the limiting dates for consideration and therefore none was awarded. In contrast the council granted fellowships to 10 out of 114 applicants for predoctoral fellowships in psychology.

Committee on the history of psychology and the war.—Work is in progress, the committee has secured the half-time service of an editorial assistant, and a large amount of the report is in preliminary draft. Complete arrangements have not been made in reference to publication.

The committee on international cooperation in anthropology has reestablished contact with many anthropologists in Europe and elsewhere and summary reports have been published. Arrangements were made to have the articles "Anthropology" in the 1944 and 1945 Britannica Book of the Year mimeographed and circulated. These articles have been translated into Hebrew and published in Edoth, the Palestine journal of ethnology and folklore; and will appear in Italian in the Annali Lateranensi.

The committee on international cooperation in psychology has also reestablished contacts with many foreign psychologists and laboratories. The need is vital for assistance to foreign libraries and individuals who have been cut off from access to scientific literature.

Committee on Latin American anthropology.—In the spring of 1946 the committee undertook a survey of research on Latin America by United States scientists and institutions for use by the American delegation to the Fourth General Assembly of the Pan American Institute of Geography and History meeting at Caracas, Venezuela. The committee also made arrangements for the Viking Fund at 14 East Seventy-first Street, New York City, to serve as informal adviser to individuals, scientists, and members of the Government preparing to leave for Latin America.

Committee on the selection and training of aircraft pilots.—This committee has concentrated its recent research on a study of visual capacity in relation to learning to fly. The study is being conducted at Ohio State University and will continue into the coming year. Experimental work under the committee's auspices at the University of Tennessee has ceased and reports of the research conducted at Tennessee will soon appear. At the request of the Civil Aeronautics Administration, which supports the work of this committee, the literature on fatigue, particularly pilot fatigue, was surveyed in respect to the hours of work of the pilot and to the needs for further research.

Committee on the survey of South American Indians.—With the publication of volume 5 of the Handbook on South American Indians sometime in 1947 the project will have been completed.

Committee on the war service of anthropologists.—The Anthropological Association, now in the process of reorganization, is considering the preparaton of a history of anthropology and the war and this committee stands ready to cooperate in the project when the association reaches agreement on what should be done.

The Committee on applied psychology and the war.—This committee has submitted a final report of its work and the work of its predecessor, the committee on service personnel—selection and training. The report (OSRD Rept. No. 6573) is available in the files of the Division. It describes the development and activities of the two committees and of the war research which was sponsored by them under a number of NDRC contracts.

Committee on food habits.—The Division recommended the continuation of this committee with its present membership until developments reveal what further arrangements, if any, should be made to facilitate advance of the field.

Recent developments in the council in connection with new contracts with governmental agencies indicate the probable appointment of new or revised division committees to meet the expanding responsibilities that are ahead.

REPORT OF THE TREASURER

For the fiscal year ended June 30, 1946

OCTOBER 17, 1946.

To the PRESIDENT of the NATIONAL ACADEMY OF SCIENCES:

The statements and schedules that follow constitute the treasurer's report and reflect the financial condition of the National Academy of Sciences (including the National Research Council) as at June 30, 1946, and the results of operations for the fiscal year ended on that date. In accordance with the practice established in the previous fiscal year, the financial statements of the Academy and Research Council have been consolidated in order to present more effectively the total resources of the Academy and the total operations during the reporting period. Schedules subsidiary to the principal statements have been so designed as to permit fairly complete analysis of the financial data relative to any projects or activities.

INVESTMENTS

The investments of the funds of the Academy (including the National Research Council) are shown in detail in schedule A-2, and are summarized by classes of investments, as follows:

	June 30, 1946			Income received during the year
	Book value	Market value	Percent [1]	
U. S. Government bonds	$737, 293. 75	$741, 480	16. 37	$18, 652. 14
Foreign government bonds	10, 085. 75	10, 550	. 23	420. 74
Railroad bonds	440, 698. 78	436, 750	9. 64	27, 324. 70
Other bonds	429, 739. 75	440, 920	9. 73	23, 257. 05
Preferred stocks	595, 423. 23	609, 250	13. 45	34, 032. 52
Common stocks	2, 000, 324. 22	2, 134, 682	47. 12	79, 592. 84
Mortgages and real estate	115, 841. 67	[2] 69, 500	1. 53	2, 371. 85
Cash	87, 192. 76	87, 193	1. 93	....
Total	4, 416, 599. 91	4, 530, 325	100. 00	185, 651. 84

[1] Of market value.
[2] Estimated.

As at June 30, 1946, the ratio of United States Government bonds to the entire portfolio (at market values) was 2.27 percent higher than at the end of the previous fiscal year, while the holdings of railroad bonds and other bonds were less by 5.95 and 2.72 percent, respectively. On the same basis, preferred stocks held were down 2.59 percent and common stocks were up 9.17 percent over the previous year-end figures. Foreign government bonds, mortgages, and real estate, and uninvested cash held substantially the same relative positions as a year earlier.

The total book value of investments (including uninvested cash) increased during the past year $478,314, due entirely to profits on sales of securities. The market value of investments owned was 103 percent of the book value on June 30, 1946, as compared with 106 percent a year ago. The investment reserve deficit in the Academy's accounts was entirely eliminated through profits on sales, resulting in a reserve balance on June 30, 1946, of $29,717. If the excess of market value over book value on June 30, 1946, were added to the investment reserve, the resulting figure would be a reserve of $143,442. During the year ended on June 30, 1946, the rate of return on the average book value of all investments was 4.44 percent, or 0.4 percent less than for the previous year.

The principal of the funds participating in the consolidated fund and the income from the pooled investments are summarized in schedule C–1 of this report.

The Bank of New York continued to act as custodian of securities and Mr. Horace S. Ford as financial adviser.

OPERATIONS

During the year ended June 30, 1946, the combined operations of the Academy and Research Council (summarized in exhibit B and detailed in schedules C–2 and C–3) indicated total income from all sources of $3,025,619.50, and total expenses for all purposes of $2,731,213. 52. The income and expenses may be classified as shown in the tables that follow in order to provide some interpretation and an indication of the magnitude of operations in the various categories

TABLE I.—*Classification of income, by source*

Source	1944–45		1945–46	
	Amount	Percent	Amount	Percent
U. S. Government, under contracts for specifically requested services	$1, 084, 356. 08	63	$1, 475, 713. 75	49
Foundations, industrial concerns, and other private sources for studies, projects, and other restricted purposes	364, 045. 13	21	1, 371, 804. 34	45
Interest and dividends on general fund investments, dues of members, sales of publications, and other sources for general purposes	272, 874. 77	16	178, 101. 41	6
Total	1, 721, 275. 98	100	3, 025, 619. 50	100

TABLE II.—*Classification of expenses, by purpose*

Purpose	1944–45		1945–46	
	Amount	Percent	Amount	Percent
Performance of work required by contracts with U. S. Government	$1, 135, 078. 12	68	$1, 489, 333. 65	55
Studies, projects, and other services pursuant to private grants and other arrangements exclusive of work for U. S. Government	322, 999. 57	19	1, 008, 939. 46	37
General administration, including operation and maintenance of the physical plant	200, 339. 06	13	232, 940. 41	8
Total	1, 658, 416. 75	100	2, 731, 213. 52	100

The $178,101.41 of income received during the year under review for the general purposes of the Academy and Research Council was available for expenditure in accordance with the Academy's internal budgeting procedure. Schedule C–3a reflects in detail the expenditures during the year from the three general fund budgets which were supported by this unrestricted income.

Exhibit C provides data on the condition of the various funds on June 30, 1946, and summarizes the transactions in the funds for the year ended on that date.

Respectfully submitted.

JEROME C. HUNSAKER, *Treasurer*.

EXHIBIT A. NATIONAL ACADEMY OF SCIENCES (INCLUDING NATIONAL RESEARCH COUNCIL)[1]

Balance sheet as at June 30, 1946

	For details see exhibit or schedule	Total	Current funds		Trust and endowment funds	Plant funds
			General	Restricted		
ASSETS						
Cash	A-1	$1,046,006.93		$989,801.53	$30,205.40	$26,000.00
Bonds and stocks (at cost) (market prices $4,373,632, $245,065, $114,025, and $4,014,542, respectively).	A-2	4,213,565.48	$235,972.57	107,550.20	3,870,042.71	
Mortgage and real estate investments (at cost) (estimated market value $69,500, $15,000, and $54,500, respectively).	A-2	115,841.67	25,000.00		90,841.67	
Advance for pension premiums		1,050.73	1,050.73			
Interfund accounts			−180,293.00	180,293.00		
Property and equipment (at cost):						
Building		1,324,902.40				1,324,902.40
Grounds		266,971.28				266,971.28
Equipment (less reserve for depreciation of $26,000).[2]		73,200.93				73,200.93
Total assets		7,041,539.42	81,730.30	1,277,644.73	3,991,089.78	1,691,074.61
CAPITAL ACCOUNTS						
Carnegie endowment fund	C	3,550,000.00			3,550,000.00	
Other funds (including investment reserve fund of $29,717.44).[3]	C	3,491,539.42	81,730.30	1,277,644.73	441,089.78	1,691,074.61
Total capital accounts		7,041,539.42	81,730.30	1,277,644.73	3,991,089.78	1,691,074.61

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[1] The accounts of the National Academy of Sciences (including the National Research Council) have been maintained substantially on a cash basis. The above balance sheet, therefore, does not reflect grants receivable under Government contracts and agreements of approximately $400,000 at June 30, 1946; commitments incurred as at June 30, 1946, principally in connection with Government contracts, of approximately $700,000; depreciation accrued on the Academy building; and minor amounts of receivables from interest, dues, and sales of publications. As at June 30, 1946, the Rockefeller Foundation and other organizations had made appropriations to the Academy amounting to approximately $1,300,000 to be administered over a period of from 1 to 5 years by the Academy for the purpose of continuing predoctoral fellowships and conducting research in various scientific endeavors.

[2] In addition to the amount of equipment shown in the above balance sheet, the Academy was the custodian at June 30, 1946, of equipment acquired in connection with work under contracts with various Government agencies amounting to approximately $40,000.

[3] The investment reserve fund was created by the Council of the Academy in 1925 to preserve the principal of trust and endowment funds, and net losses on sales of investments since then, less transfers of 5 percent of the annual income of certain of the funds, were charged thereto to June 30, 1945, at which time the fund had a debit balance of $431,039.42. Credits of $460,756.86 were made to the fund during the year ended June 30, 1946, representing net profit on sales of investments. No segregation of profits and losses on sales of investments comprising the investment reserve fund has been maintained in the accounts of the Academy, and in the balance sheet, therefore, the Academy has added the reserve fund to trust and endowment funds to which the major portion of the reserve fund applies.

SCHEDULE A-1.—*Cash on hand and in banks as at June 30, 1946*

On hand:		
Petty cash funds and advances	$8,005.00	
Stamp fund	2,000.00	
		$10,005.00
In banks:		
Washington:		
Riggs National Bank (treasurer's account)	810,428.86	
American Security & Trust Co. (business manager's account)	138,380.31	
		948,809.17
New York:		
Bank of New York:		
National Academy of Sciences	79,140.34	
National Research Council	8,052.42	
		87,192.76
Total (exhibit A)		1,046,006.93

SCHEDULE A-2.—*Investments owned as at June 30, 1946*

	Face amount or number of shares	Book value	Market value
CURRENT GENERAL FUNDS			
National Academy of Sciences:			
Bonds:			
U. S. Treasury 2½'s, 1958-72	$75,000	$75,618.75	$75,000
New England Power Association 5½'s, 1954	$1,000	1,030.00	1,025
Michigan Central R. R. 4½'s 1979	$6,000	6,315.00	6,400
Subtotal	....	82,963.75	82,425
Stocks:			
New Amsterdam Casualty Co. common	130	4,643.47	4,300
St. Regis Paper Co. preferred	400	21,200.00	21,000
Subtotal	....	25,843.47	25,300
Total current general funds (NAS)	....	108,807.22	107,725
National Research Council:			
Bonds:			
American & Foreign Power 5's, 2030	$10,000	9,725.00	11,100
Cleveland, Cincinnati, Chicago & St. Louis Ry. E 4½'s 1977	$10,000	9,650.00	9,500
Kingdom of Norway 4¼'s 1965	$6,000	6,004.75	6,330
U. S. Treasury 2¼'s, 1962	$15,000	15,000.00	15,600
U. S. Treasury 2½'s, 1972	$20,000	20,137.50	20,800
Bond Investment Trust of America (units)	200	21,676.10	21,100
Subtotal	....	82,193.35	84,430
Stocks:			
American Re-Insurance Co. common	50	1,912.50	1,750
American Surety Co. of New York common	50	3,725.00	3,600
Beneficial Loan Corp. common	180	4,143.60	5,760
Commonwealth Edison Co. common	200	4,455.00	7,200
Household Finance Corp. common	50	1,318.77	1,700
Louisville & Nashville R. R. common	100	5,726.75	6,600
New Amsterdam Casualty Co. common	50	1,775.00	1,650
St. Regis Paper Co. 5 percent preferred	200	10,600.00	10,600
Texas Gulf Sulphur Co. common	100	4,360.58	5,800
Twentieth Century Fox Film	150	6,954.80	8,250
Subtotal	....	44,972.00	52,910
Real estate: 322-24 West 41st St., New York, N. Y	....	25,000.00	[1] 15,000
Total current general funds (NRC)	....	152,165.35	152,340
Total current general funds (NAS and NRC)	....	260,972.57	260,065

SCHEDULE A-2.—*Investments owned as at June 30, 1946*—Continued

	Face amount or number of shares	Book value	Market value
CURRENT RESTRICTED FUNDS			
National Academy of Sciences:			
Bonds:			
American & Foreign Power 5's, 2030	$13,000	$12,642.50	$14,000
Cleveland, Cincinnati, Chicago & St. Louis Ry. E 4½'s, 1977	$1,000	960.00	1,000
International Telephone & Telegraph Corp. 4½'s, 1952	$4,000	3,670.00	4,150
Michigan Central R. R. 4½'s, 1979	$5,000	5,262.50	5,400
U. S. Treasury 2½'s, 1972	$40,000	40,000.00	41,000
Bond Investment Trust of America (units)	20	[1] 2,209.60	2,100
Subtotal		64,744.60	67,650
Stocks:			
Detroit Edison Co. common	220	5,706.65	6,105
New Amsterdam Casualty Co. common	90	3,214.73	3,000
Subtotal		8,921.38	9,105
Total current restricted funds (NAS)		73,665.98	76,755
National Research Council:			
Bonds:			
Kingdom of Norway 4¼'s, 1965	$4,000	4,081.00	4,220
New England Power Association 5's, 1948	$10,000	10,161.25	10,100
Subtotal		14,242.25	14,320
Stocks:			
American Gas & Electric Co. common	200	7,318.18	8,800
Continental Casualty Co. common	50	2,750.00	2,500
Household Finance Corp. common	100	2,619.00	3,400
Twentieth Century Fox Film common	150	6,954.79	8,250
Subtotal		19,641.97	22,950
Total current restricted funds (NRC)		33,884.22	37,270
Total current restricted funds (NAS and NRC)		107,550.20	114,025
TRUST AND ENDOWMENT FUNDS (NAS)			
Bonds:			
Railroad:			
Boston & Maine R. R. 4's, 1960	$50,000	51,250.00	50,000
Buffalo, Rochester & Pittsburgh R. R. 4½'s, 1957	$60,000	50,413.75	51,600
Cleveland, Cincinnati, Chicago & St. Louis Ry. E 4½'s, 1977	$49,000	47,320.00	46,500
Colorado & Southern Ry. 4½'s, 1980	$60,000	42,674.15	42,000
Delaware, Lackawanna & Western 4's, 1993	$60,000	46,800.00	44,400
Kansas City, Fort Scott & Memphis 4's, 1936	$50,000	41,765.88	39,750
Lehigh Valley R. R. 4½'s, 1950	$50,000	46,740.00	47,500
Michigan Central R. R. 4½'s, 1979	$39,000	41,047.50	41,200
Virginia Corp. 5's, 1952	$50,000	50,500.00	51,500
Subtotal		418,511.28	414,450
Utility:			
American & Foreign Power 5's, 2030	$27,000	26,257.50	30,000
International Telephone & Telegraph Corp. 4½'s, 1952	$46,000	43,348.90	47,725
Interstate Power Co. 5's, 1957	$50,000	48,670.00	51,000
New England Power Association 5½'s, 1954	$49,000	50,292.50	50,225
Subtotal		168,568.90	178,950
U. S. Government:			
U. S. Treasury G 2½'s, 1953	$50,000	50,000.00	50,500
U. S. Treasury G 2½'s, 1954	$50,000	50,000.00	50,500
U. S. Treasury G 2½'s, 1956	$50,000	50,000.00	50,500
U. S. Treasury G 2½'s, 1957	$50,000	50,000.00	50,500
U. S. Treasury G 2½'s, 1958	$70,000	70,000.00	71,000
U. S. Treasury 2½'s, 1969	$100,000	100,125.00	100,080
U. S. Treasury 2½'s, 1972	$215,000	216,412.50	216,000
Subtotal		586,537.50	589,080

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[1] Estimated.

SCHEDULE A-2.—*Investments owned as at June 30, 1946*—Continued

	Face amount or number of shares	Book value	Market value
TRUST AND ENDOWMENT FUNDS (NAS)—continued			
Bonds—Continued			
Industrial:			
American Tobacco Co. 3's, 1962	$50,000	$52,500.00	$52,375
Ward Baking Co. 5½'s, 1970	40,000	43,450.00	42,950
Subtotal		95,950.00	95,325
Other: Bond Investment Trust of America (units)	980	104,106.40	103,070
Stocks, preferred:			
Blue Ridge Corp	650	35,788.27	35,750
Buffalo Niagara Electric Corp	400	41,140.00	42,400
A. M. Byers Co	400	43,075.00	43,600
Cudahy Packing Co	500	51,150.00	52,250
Eastern Gas & Fuel Associates	800	59,047.02	67,000
Firestone Tire & Rubber Co	500	54,350.00	53,500
Great Northern Ry	1,000	57,442.94	61,775
B. F. Goodrich Co	500	52,950.00	52,250
Jones-Laughlin Steel Co	500	51,925.00	53,125
Remington-Rand, Inc	500	52,675.00	51,500
St. Regis Paper Co	600	31,800.00	31,500
Stokeley-Van Camp	1,500	32,280.00	33,000
Subtotal		563,623.23	577,650
Stocks, common:			
Industrial:			
American Can Co	500	48,612.50	49,725
American Chain & Cable Co., Inc	1,000	37,142.32	33,875
Anaconda Copper Mining Co	1,000	47,555.80	47,500
Beatrice Creamery Co	800	50,976.88	52,000
Bendix Aviation Corp	500	25,569.64	23,875
Beneficial Industrial Loan Corp	1,500	31,915.92	48,000
Central Aguirre Associates	1,500	39,698.54	38,437
Commercial Credit Corp	1,500	76,490.30	85,503
Continental Oil Co. of Delaware	1,000	40,976.86	45,500
Crown Zellerbach Corp	1,000	31,453.10	35,000
General Electric Corp	1,000	48,683.60	47,500
Household Finance Corp	1,000	26,215.06	34,515
National Container Corp	1,000	35,688.72	35,000
National Lead Co	1,500	54,472.87	56,250
Pacific Lighting Corp	500	31,415.70	31,500
R. J. Reynolds Tobacco Co	1,000	41,941.81	44,000
Sears, Roebuck & Co	1,000	45,237.50	43,125
Standard Oil Co. of California	1,000	47,468.04	53,750
Standard Oil Co. of Indiana	1,000	34,063.48	46,000
Standard Oil Co. of New Jersey	1,000	67,530.57	77,000
Sunshine Biscuit Co., Inc	1,000	42,769.01	52,250
Sylvania Electric Products, Inc	1,000	39,874.16	32,500
Texas Co	600	32,043.61	39,000
Texas Gulf Sulphur Co	800	36,904.29	46,400
Twentieth Century Fox Film Co	700	42,505.78	38,500
Walgreen Co	1,000	40,751.34	47,500
West Indies Sugar Corp	1,500	60,788.64	55,500
Subtotal		1,158,746.04	1,239,705
Railroad:			
Atchison, Topeka & Santa Fe	400	43,590.00	46,400
Atlantic Coast Line	500	38,358.02	39,750
Virginian Ry. Co	600	30,225.18	31,200
Subtotal		112,173.20	117,350
Utility:			
American Gas & Electric Co	1,500	55,061.87	65,780
Commonwealth Edison Co	1,500	47,355.12	54,000
Consolidated Edison Co. of New York	1,500	49,085.98	50,437
Detroit Edison Co	1,280	33,703.70	35,520
Houston Light & Power Co	600	49,832.82	54,600
Pacific Gas & Electric Co	1,000	45,212.42	45,875
Philadelphia Electric Co	1,500	39,410.31	43,500
Subtotal		319,662.22	349,712

Schedule A-2.—*Investments owned as at June 30, 1946*—Continued

	Face amount or number of shares	Book value	Market value
TRUST AND ENDOWNMENT FUNDS (NAS)—continued			
Stocks, common—Continued			
Bond and insurance:			
Aetna Casualty & Surety Co	200	$19,950.00	$19,400
American Surety Co. of New York	200	15,025.00	14,400
American Re-Insurance Co	400	15,094.50	14,000
Bank of New York	100	41,145.00	44,400
Bankers Trust Co	600	26,125.00	28,200
Continental Casualty Co	300	16,500.00	15,000
First National Bank of Boston	600	27,841.26	32,350
Guaranty Trust Co. of New York	200	63,232.50	65,800
Manufacturers Trust Co	600	35,312.90	37,200
New Amsterdam Casualty Co	180	6,429.30	5,900
United States Guarantee Co	200	18,300.00	17,600
Subtotal		284,955.46	294,250
Other: Commercial Investment Trust	1,000	57,208.48	55,000
Total bonds and stocks, trust and endowment funds		3,870,042.71	4,014,542
Mortgages:			
229 East 79th St., New York, N. Y, 3½ percent		56,887.83	[1] 40,000
10-16 Manhattan Ave., New York, N. Y		5,953.84	[1] 2,500
Southeast corner 3d Ave. and 170th St., New York, N. Y		28,000.00	[1] 12,000
Subtotal		90,841.67	54,500
Total trust and endowment funds		3,960,884.38	4,069,042
Grand total		4,329,407.15	4,443,132

[1] Estimated.

EXHIBIT B.—*Statement of capital accounts for the year ended June 30, 1946*

	Total	Current funds			Trust and endowment funds		Plant funds
		General	Restricted		Fund balances	Investment reserve fund	
			Private	Government contracts			
Balance, June 30, 1945	$6,354,197.88	$130,851.74	$707,544.85	$266,498.99	$3,961,152.52	−$431,039.42	$1,719,189.20
Current operations:							
Income:							
Grants and contracts, including OSRD (Government) reimbursement of overhead of $11,101.76	2,793,013.61	11,101.76	1,306,811.09	1,475,100.76			
Interest, dividends, and rent	185,651.84	162,897.48	22,754.36				
Dues	12,609.93	1,840.00	10,769.93				
Sales of publications	22,409.74	1,206.33	21,203.41				
Royalties	10,446.55	181.00	10,265.55				
Other	1,487.83	874.84		612.99			
Total income (for details see schedule C-2)	3,025,619.50	178,101.41	1,371,804.34	1,475,713.75			
Expenses:							
U. S. Government projects under subcontracts	905,493.87			905,493.87			
Fellowships and grants to others	359,875.30		304,694.49	55,180.81			
Salaries and wages	606,818.16	166,027.05	147,322.45	293,468.66			
Fees and other personal services	81,452.28	19,122.37	12,721.46	49,608.45			
Travel	157,953.73	8,556.30	59,980.40	89,417.03			
Publications	40,998.32	3,098.46	28,464.32	9,435.54			
Depreciation of equipment	3,000.00	3,000.00					
Other	[1] 575,621.86	33,136.23	[1] 455,756.34	86,729.29			
Total expenses (for details see schedule C-3)	2,731,213.52	232,940.41	1,008,939.46	1,489,333.65			
Excess of income over expenses	294,405.98	−54,839.00	362,864.88	−13,619.90			
Transfers among fund capital accounts		−2,800.00	39,731.03	−36,931.03			
Net profit on sales of investments	478,314.44	10,258.00	7,299.58			460,756.86	
Contribution to capital	219.82				219.82		
Refunds to donors and on advance payments	−47,941.88		−26,489.69	−21,452.19			
New equipment purchased		−1,740.44	−3,372.44	−4,429.35			9,542.23
Adjustment to bring book value of equipment into agreement with physical inventory	−33,227.47						−33,227.47
Elimination from plant funds of equipment purchased with U. S. Government funds	−4,429.35						−4,429.35
Balance, June 30, 1946	7,041,539.42	81,730.30	1,087,578.21	190,066.52	3,961,372.34	29,717.44	1,691,074.61

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[1] Includes $400,497.01 expenses applicable to streptomycin clinical testing program.

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1946*

	Fund capital, June 30, 1945	Current operations		Other transactions		Fund capital, June 30, 1946	Represented by—	
		Income	Expenses	Transfers (net)	Other		Investments	Other accounts
Current general funds:								
National Academy of Sciences:								
Carnegie Endowment Fund, income	$81,547.49	$153,538.77	$69,556.19	−$64,231.00	[1] −$1,740.44	$99,558.63	$99,854.85	−$296.22
Academy general fund	24,738.62	2,114.84	86,288.58	37,902.88		−21,532.24	8,952.37	−30,484.61
Agassiz Fund, income		2,689.38	49.98	−2,639.40				
Nealley Fund, income		1,052.02	19.54	−1,032.48				
Total	106,286.11	159,395.01	155,914.29	−30,000.00	−1,740.44	78,026.39	108,807.22	−30,780.83
National Research Council: Council general fund	24,565.63	18,706.40	77,026.12	27,200.00	[2] 10,258.00	3,703.91	152,165.35	−148,461.44
Total current general funds	130,851.74	178,101.41	232,940.41	−2,800.00	8,517.56	81,730.30	260,972.57	−179,242.27
Current restricted funds:								
National Academy of Sciences:								
Government projects:								
Academy emergency grant, Academy Government projects	16,228.25	6,434.02	7,149.90			15,512.37		15,512.37
Research Board, preliminary expenses	1,545.71	3,454.29		−5,000.00				
Pacific area project			694.94			−694.94		−694.94
Editorial Board on Penicillin			1,499.44			−1,499.44		−1,499.44
Total Government projects (NAS)	17,773.96	9,888.31	9,344.28	−5,000.00		13,317.99		13,317.99
Private grants and other projects:								
Academy emergency grant	17,733.33			26,931.03		44,664.36		44,664.36
Academy proceedings	7,128.14	1,924.00		−1,169.22		7,882.92		7,882.92
Bache Fund, income	11,014.66	3,543.11	1,565.00			12,992.77	5,262.50	7,730.27
Billings Fund, income		1,356.03	25.25	−1,330.78				
Building site fund	9,341.42	349.21	9.42			9,681.21	9,258.12	423.09
Building and grounds repair fund	50,818.16		10,278.56			40,539.60		40,539.60
John J. Carty medal and award, income	956.08	1,345.41	24.99			2,276.50		2,276.50
Comstock Fund, income	8,397.14	789.41	3,031.50		[3] 1,473.47	7,628.52	960.00	6,668.52
Draper Fund, income	2,067.99	537.47	651.21			1,954.25		1,954.25
Elliot Fund, income	2,169.69	431.27	1,210.77			1,390.19		1,390.19
Emergency fund proceedings	3,327.79					3,327.79		3,327.79
Gibbs Fund, income	4,487.75	298.10	5.54			4,780.31		4,780.31
Gould Fund, income	14,043.09	1,408.51	1,129.52			14,322.08	9,505.00	4,817.08
Hale lectureship	385.55					385.55		385.55
Hartley Fund, income	545.70	64.25	111.64			498.31		498.31

See footnotes at end of table.

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1946*—Continued

	Fund capital, June 30, 1945	Current operations		Other transactions		Fund capital, June 30, 1946	Represented by—	
		Income	Expenses	Transfers (net)	Other		Investments	Other accounts
Current restricted funds—Continued								
National Academy of Sciences—Continued								
Private grants and other projects—Continued								
Joseph Henry Fund, income	$3,316.70	$2,537.03	$1,122.15			$4,731.58		$4,731.58
Joint proceedings	13,470.64	3,192.81	7,062.84	$5,000.00		14,600.61		14,600.61
Marsh Fund, income	2,735.75	1,076.04	19.98			3,791.81		3,791.81
Murray Fund, income	1,896.17	537.48	9.99			2,423.66		2,423.66
National Park problems	80.79					80.79		80.79
National Science Fund	82,061.60	1,445.82	10,043.81		[2] $1,287.50	74,751.11	$40,000.00	34,751.11
President's secretarial expense	75.00		75.00					
Research Board, preliminary expenses	2,546.19		776.59		[1] −200.98 [3] −1,568.62			
Retirement fund, income	2,239.65	2,400.52	2,244.62			2,395.55		2,395.55
Scientific Publication Fund	1,800.06	9.38				1,809.44		1,809.44
Special insurance fund	8,775.00		700.00			8,075.00		8,075.00
Smith Fund, income	10,745.28	857.30	77.53			11,525.05	8,680.36	2,844.69
Thompson Fund, income	2,056.90	537.47	1,070.58			1,523.79		1,523.79
Walcott Fund, income	1,395.39	270.05	5.04			1,660.40		1,660.40
Watson Fund, income	7,932.63	1,181.84	25.24			9,089.23		9,089.23
Total private grants and projects (NAS)	273,544.24	26,092.51	41,276.77	29,431.03	991.37	288,782.38	73,665.98	215,116.40
Total current restricted funds (NAS)	291,318.20	35,086.82	50,621.05	24,431.03	991.37	302,100.37	73,665.98	228,434.39
National Research Council:								
Government projects:								
Division of Engineering and Industrial Research:								
Highway Research Board		20,000.00	20,000.00					
Metallurgical advisory committee (OSRD)	11,134.34	96,195.83	130,668.47			−23,338.30		−23,338.30
War metallurgy committee (WPB)	10,379.42		3,724.44	45.64	[4] −6,700.62			
Quartermaster Corps problems	−2,130.24	652,316.11	679,510.13	−5,000.00	[1] −305.88	−34,630.14		−34,630.14
Aluminum salvage project	1,070.51		4,419.27			−3,348.76		−3,348.76
Engineering Information Service	6,065.51					6,065.51		6,065.51
Board for Prosthetic and Sensory Devices	2,448.95	364,202.37	246,446.43	−5,000.00	[1] −1,505.44	113,699.45		113,699.45
Coast Guard problems	5,500.00	31,138.99	27,485.96			9,153.03		9,153.03
Surplus aircraft engine survey		24,472.51	24,472.51					
Ship welding research			5,015.83		[1] −25.25	−5,041.08		−5,041.08
Division of Medical Sciences:								
Expenses, committees on military medicine	1,405.51				[4] −1,405.51			
Projects, committees on military medicine	6,111.46				[4] −6,111.46			
Committees on military medicine, revolving fund	61,569.76	89,231.62	91,827.44	−20,000.00	[1] −145.35	38,828.59		38,828.59

Committee on materials in medicine and surgery	7,975.48		744.45	3.57	[4]−7,234.60			
Medical food requirements	5,916.01	166.66	250.00			5,832.67		5,832.67
Committee on civil aviation medicine	5,029.59	5,000.00	4,158.10	−3,000.00	[1]−100.49	2,771.00		2,771.00
Insect control committee		53,974.08	69,189.70	20,000.00	[1]−835.04	3,949.34		3,949.34
Veterans' medical problems			1,933.06			−1,933.06		−1,933.06
Division of Biology and Agriculture:								
Food and Nutrition Board	7,328.47	12,222.18	6,861.86			12,688.79		12,688.79
Committee on food composition	5,271.15	16,732.45	19,956.61			2,046.99		2,046.99
Committee on control of deterioration		9,762.40	20,424.74		[1]−14.90	−10,677.24		−10,677.24
Division of Anthropology and Psychology:								
Aircraft pilots:								
1942	109.74		109.74					
1943	860.60	612.99	380.40	−87.51		1,005.68		1,005.68
1944	464.52		1,051.03	1,750.00		1,163.49		1,163.49
1945	67,677.51	28,466.67	59,053.92	−1,662.49	[1]−1,497.00	33,930.77		33,930.77
1946		50,000.00	35,973.48			14,026.52		14,026.52
Committee on food habits	4,058.78	4,768.74	1,841.51			6,986.01		6,986.01
Committee on applied psychology and the war	5,726.66	4,576.26	6,068.06	−4,980.28		−745.42		−745.42
Executive board:								
Bibliographic service to Central and South America	10,091.09		5,776.40			4,314.69		4,314.69
Committee on fortification design	12,014.38	1,985.58		−13,999.96				
Scientific and technical bibliography	12,645.83		12,645.83					
Total Government projects (NRC)	248,725.03	1,465,825.44	1,479,989.37	−31,931.03	−25,881.54	176,748.53		176,748.53
Division of Physical Sciences:								
Revolving fund for publication of mathematical books	1,617.48	210.12				1,827.60		1,827.60
Rotating fund, physics committees	8,729.73	1,463.83				10,193.56		10,193.56
Revolving fund for publication of mathematical tables	13,124.75	57.50		−500.00		12,682.25		12,682.25
Journal of mathematical tables	357.42	1,773.00	2,110.45	800.00		819.97		819.97
Publication of Research in Biophysics	1,000.00					1,000.00		1,000.00
Division of Engineering and Industrial Research:								
Highway Research Board	6,340.16	90,968.21	51,539.25		[1] −1,539.62	44,229.50		44,229.50
Heat transmission	373.75					373.75		373.75
Industrial Research Institute	15,896.79				[5] 15,896.79			
Nonrigid pavement project	1,192.28	850.00	1,755.90			286.38		286.38
Committee on fatigue in industry	1,479.41		1,273.54			205.87		205.87
Calcium chloride stabilization	1,708.89	2,200.00	2,281.41			1,627.48		1,627.48
Division of Chemistry and Chemical Technology:								
Fellowship in protein chemistry	262.03					262.03		262.03
Committee on chemical data for ceramists	714.20	186.00				900.20		900.20
Committee on catalysis	411.50	27.00				438.50		438.50
Division of Geology and Geography:								
Research fund, committee on sedimentation	1,223.01	27.10				1,250.11		1,250.11
Ore deposits as related to structural features		444.68	444.68					

See footnotes at end of table.

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1946*—Continued

	Fund capital, June 30, 1945	Current operations		Other transactions		Fund capital, June 30, 1946	Represented by—	
		Income	Expenses	Transfers (net)	Other		Investments	Other accounts
Current restricted funds—Continued								
National Research Council—Continued								
Government projects—Continued								
Division of Medical Sciences:								
Sex research fund	$199.84	$46,653.81	$46,819.68			$33.97		$33.97
Fellowships in medicine	2,832.78	10,167.22	11,724.54			1,275.46		1,275.46
Committee on endocrinology	1,292.00	26,988.61	27,982.29			298.32		298.32
Fellowships in virus studies and orthopedics	18,524.42	50,000.00	11,985.44			56,538.98		56,538.98
Special medical committees, Carnegie Corp	3,733.51		−454.43		[1] −$200.98	3,986.96		3,986.96
Welch fellowships	2,563.57	11,436.43	12,768.59			1,231.41		1,231.41
Tropical medicine lectures	1,789.78				[3] −1,789.78			
War medical information	31,692.45		27,559.57		[1] −214.80	3,918.08		3,918.08
Lectures in pathology	4,627.78					4,627.78		4,627.78
Committee on growth		175,640.55	97,781.00		[1] −941.58	76,917.97		76,917.97
Fellowships in anesthesia		13,000.00	216.91			12,783.09		12,783.09
Streptomycin clinical testing program		665,674.60	403,406.61			262,267.99		262,267.99
Division of Biology and Agriculture:								
Committee on animal nutrition	313.22	73.14	.60			385.76		385.76
National Livestock and Meat Board fellowships	2,648.91		−527.50		[3] −3,176.41			
Committee on human heredity	1,417.48		1,351.52			65.96		65.96
Committee on aerobiology	1,464.18					1,464.18		1,464.18
Nutrition foundation fund	4,878.64	5,036.12	7,162.65			2,752.11		2,752.11
Milbank Memorial Fund	12,987.58		7,747.49			5,240.09		5,240.09
Committee on nutritional aspects of aging	6,246.51	5,000.00	7,051.37			4,195.14		4,195.14
Joint committee on forestry	436.96		150.55			286.41		286.41
Tropical plant research fund	4,256.58					4,256.58		4,256.58
Agricultural Board	906.30	19,200.00	2,068.69			18,037.61		18,037.61
General account, Food and Nutrition Board	10,821.83	1,187.16	10,696.69		[1] −73.50	1,238.80		1,238.80
Food and Nutrition Board		10,000.00	2,495.66		[1] −200.98	7,303.36		7,303.36
Division of Anthropology and Psychology:								
National intelligence tests	3,551.37	303.15				3,854.52		3,854.52
Child development abstracts	2,204.40	4,168.35	4,253.18			2,119.57		2,119.57
Directory of anthropologists	43.65	15.60				59.25		59.25
Psychological techniques for military service	403.11					403.11		403.11
Office of Psychological Personnel	3,934.31	5,000.00	4,876.99		[4] −4,057.32			
Obesity and allergy in childhood	345.44					345.44		345.44
Textbook in military psychology fund	5,237.05	3,809.94	401.29			8,645.70		8,645.70

Executive board:								
International critical tables	32,669.50	4,300.50			[3] 4,538.61	41,508.61	33,884.22	7,624.39
Annual tables	7,386.22	991.78	5,280.82			3,097.18		3,097.18
Committee on scientific aids to learning	23,548.09		13,548.09			10,000.00		10,000.00
Subcommittee on individual hearing aids	4,333.38		903.92			3,429.46		3,429.46
Subcommittee on group hearing aids	3,152.34					3,152.34		3,152.34
Ethnogeographic Board, joint fund	24,905.95		9,023.74			15,882.21		15,882.21
Central purposes fund	120,519.91	−2,600.00	17,181.97			100,737.94		100,737.94
Office of Scientific Personnel	3,544.57	11,011.00	13,679.43	3,000.00		3,876.14		3,876.14
Fellowships in the natural sciences	2,208.07	46,011.93	36,187.05			12,032.95		12,032.95
Library book fund	3,047.22	1,788.04	408.93			4,426.33		4,426.33
American Geophysical Union		7,000.00	7,000.00					
Industrial Research Laboratories	2,416.00	4,367.02	3,569.33	7,000.00		10,213.69		10,213.69
Predoctoral fellowships	4,976.80	105,873.44	98,950.04			11,900.20		11,900.20
Committee on neurobiology		2,000.00	1,064.41			935.59		935.59
Scientific and technical bibliography		9,971.00	9,564.46			406.54		406.54
Naples Zoological Station		1,200.00	331.50			868.50		868.50
Survey subcommittee, Latin-American anthropology		1,200.00	39.89			1,160.11		1,160.11
National Bureau of Standards projects (with respect to which the NRC functions only as a fiscal agent):								
Problems of refrigeration	677.37					677.37		677.37
Impermanency of records	132.70					132.70		132.70
Acoustic properties of materials	990.85		66.84			924.01		924.01
Thermal properties of liquids	1,584.61	785.00	7.07			2,362.54		2,362.54
Fire resistance of materials	391.20	250.00	399.20			242.00		242.00
Current meter investigations	126.62					126.62		126.62
Thermal investigations	1,300.03		105.82			1,194.21		1,194.21
Ignition research	1,466.89		542.39			924.50		924.50
Acidity of citrus fruits	8.44					8.44		8.44
Motion-picture projection equipment	1,776.70					1,776.70		1,776.70
Construction of high-precision standards	1,554.00		135.95			1,418.05		1,418.05
Experimental optical glass	51.82					51.82		51.82
Investigations on stainless steel sheets	365.83					365.83		365.83
Investigation of high-strength reinforcement of concrete	4,605.95		273.50			4,332.45		4,332.45
Strength of metals	2,474.50		2,473.73		[3] −.77			
Total private grants and projects (NRC)	434,000.61	1,345,711.83	967,662.69	10,300.00	−23,553.92	798,795.83	33,884.22	764,911.61
Total current restricted funds (NRC)	682,725.64	2,811,537.27	2,447,652.06	−21,631.03	−49,435.46	975,544.36	33,884.22	941,660.14
Total current restricted funds (NAS and NRC)	974,043.84	2,847,518.09	2,498,273.11	2,800.00	−48,444.09	1,277,644.73	107,550.20	1,170,094.53

See footnotes at end of table.

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1946*—Continued

	Fund capital, June 30, 1945	Current operations		Other transactions		Fund capital, June 30, 1946	Represented by—	
		Income	Expenses	Transfers (net)	Other		Investments	Other accounts
Trust and endowment funds:								
National Academy of Sciences:								
Bache Fund, principal	$60,000.00					$ 60,000.00	$59,913.12	$86.88
Carnegie Endowment Fund, principal	3,550,000.00					3,550,000.00	3,549,970.71	29.29
Comsotck Fund, principal	15,000.00					15,000.00	14,996.05	3.95
Consolidated fund, principal	291,152.52				[6] $219.82	291,372.34	291,159.88	212.46
Gould Fund, principal	20,000.00					20,000.00	19,988.80	11.20
Watson Fund, principal	25,000.00					25,000.00	24,855.82	144.18
Total	3,961,152.52				219.82	3,961,372.34	3,960,884.38	487.96
Investment reserve fund	−431,039.42				[2] 460,756.86	29,717.44		29,717.44
Total trust and endowment funds	3,530,113.10				460,976.68	3,991,089.78	3,960,884.38	30,205.40
Plant funds	1,719,189.20				[7] 5,112.88 [8] −33,227.47	1,691,074.61		1,691,074.61
Grand total	6,354,197.88	3,025,619.50	2,731,213.52		392,935.56	7,041,539.42	4,329,407.15	2,712,132.27

[1] New equipment.
[2] Profit on sales of securities.
[3] Refund to donor.
[4] Refund on advance payments.
[5] Balance transferred to new organization, Industrial Research Institute, Inc.
[6] Capital contribution.
[7] New equipment ($9,542.23) less equipment purchased for the Government.
[8] Adjustment to bring book value into agreement with physical inventory.

SCHEDULE C–1.—*Consolidated fund*

	Balances July 1, 1945	Increases	Balances June 30, 1946	Investment income distributed
Agassiz Fund	$50,000.00		$50,000.00	$2,958.90
Billings Fund	25,038.57	$219.82	25,258.39	1,489.77
John J. Carty Medal and award	25,000.00		25,000.00	1,480.09
Draper Fund	10,000.00		10,000.00	591.25
Elliot Fund	8,000.00		8,000.00	474.39
Gibbs Fund	5,545.50		5,545.50	328.05
Hartley Fund	1,200.00		1,200.00	70.68
Joseph Henry Fund	47,163.50		47,163.50	2,791.35
Marsh Fund	20,000.00		20,000.00	1,183.91
Murray Fund	10,000.00		10,000.00	591.26
Nealley Fund	19,555.55		19,555.55	1,157.54
Retirement Fund	44,649.40		44,649.40	2,641.19
Smith Fund	10,000.00		10,000.00	591.25
Thompson Fund	10,000.00		10,000.00	591.25
Walcott Fund	5,000.00		5,000.00	297.02
Total	291,152.52	219.82	291,372.34	17,237.90

SCHEDULE C–1 (a).—*Trust and endowment funds as at June 30, 1946*

A. Principal of funds, the income from which may be used for general purposes:	
Agassiz Fund: Bequest of Alexander Agassiz, a member of the Academy (1910), for the general uses of the Academy	$50,000.00
Carnegie Endowment Fund: By resolution voted Mar. 28, 1919, and later amendments, the Carnegie Corp. of New York pledged $5,000,000 for the purposes of the Academy and the National Research Council, $1,450,000 of this sum to pay for the erection of a building and $3,550,000 to be capitalized at such times as convenient to the corporation in view of its other obligations; the amount remaining in the hands of the corporation to bear interest at the rate of 5 percent per annum and 7 installments to complete capitalization	3,550,000.00
Nealley Fund: Bequest of $20,896.01 of George True Nealley in 1925 for the general purposes of the Academy, less refund of $1,500 in November 1926, to a creditor of the estate; this was supplemented by an additional sum of $159.54 from the estate in March 1931	19,555.55
B. Principal of funds, the income from which may be used for specifically designated purposes:	
Bache Fund: Bequest of Alexander Dallas Bache, a member of the Academy (1870), to aid researches in physical and natural sciences	60,000.00
Billings Fund: Bequest of Mrs. Mary Anna Palmer Draper (Mrs. Henry Draper) in 1915, to support the publication of the Proceedings of the Academy or for other purposes to be determined by the Academy (the estate is still in process of distribution)	25,258.39
John J. Carty Medal and Award for the Advancement of Science: Gift of the American Telephone & Telegraph Co. on November 13, 1930, in recognition of the distinguished achievements of John J. Carty as scientist and engineer, and his noteworthy contributions to the advancement of fundamental and applied science, and in appreciation of his great services for many years in developing the art of electrical communication, and as a lasting testimonial of the love and esteem in which he was held by his many thousand associates in the Bell System; the income thereof to be used for a gold medal and award, not oftener than once in 2 years, by vote of the Academy, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy	25,000.00

SCHEDULE C–1 (a).—*Trust and endowment funds as at June 30, 1946*—Con.

B. Principal of funds, the income from which may be used for specifically designated purposes—Continued	
Comstock Fund: Gift of Gen. Cyrus B. Comstock, a member of the Academy (1907), to promote researches in electricity, magnetism, or radiant energy through the Comstock prize money to be awarded once in 5 years for notable investigations. This fund has been increased from $12,406.02 to $15,000 by profit from sale of bonds and by transfer from income to capital	$15, 000. 00
Draper Fund: Gift of Mrs. Henry Draper in 1883 in memory of her husband, a former member of the Academy, to found the Henry Draper Medal to be awarded for notable investigations in astronomical physics; the balance of income is applied to aid research in this science	10, 000. 00
Elliot Fund: Gift of Margaret Henderson Elliot to found the Daniel Giraud Elliot Gold Medal and Honorarium for the most meritorious work on zoology or paleontology published in each year	8, 000. 00
Gibbs Fund: Established by gift of Wolcott Gibbs, a member of the Academy (1892), and increased by a bequest of the late Morris Loeb in 1914 for the promotion of researches in chemistry	5, 545. 50
Gould Fund: Gift of Miss Alice Bache Gould in 1897 in memory of her father, a former member of the Academy, for the promotion of researches in astronomy	20, 000. 00
Hartley Fund: Gift from Mrs. Helen Hartley Jenkins, 1913–14, in memory of her father, Marcellus Hartley, to found the medal of the Academy awarded for eminence in the application of science to public welfare	1, 200. 00
Joseph Henry Fund: Contribution of $40,000 by Fairman Rogers, Joseph Patterson, George W. Childs, and others as an expression of their respect and esteem for Prof. Joseph Henry; this sum was deposited with the Pennsylvania Co. for Insurance of Lives and Granting Annuities in trust, with authorization to collect the income thereon and to pay over the same to Prof. Joseph Henry during his natural life, and after his death to his wife and daughters, and after the death of the last survivor to "deliver the said fund and the securities in which it shall then be invested to the National Academy of Sciences, to be thenceforward forever held in trust under the name and title of 'the Joseph Henry Fund'." The death of Miss Caroline Henry on November 10, 1920, removed the last surviving heir of Joseph Henry to the income of the Joseph Henry Fund. The purpose of this fund is to assist meritorious investigators, especially in the direction of original research. The Academy received $39,739.57 from the Pennsylvania Co. for Insurance of Lives and Granting Annuities, to which was added $7,423.93 from income	47, 163. 50
Marsh Fund: Bequest of Othniel Charles Marsh, a member of the Academy (1909), to promote original research in the natural sciences; to the original bequest of $10,000 the Academy has added interest received from the estate and has authorized the increase of the fund to $20,000 by annual additions from income	20, 000. 00
Murray Fund: Gift from the late Sir John Murray in 1911 to found the Alexander Agassiz Gold Medal in honor of a former member and president of the Academy, to be awarded for original contribution to the science of oceanography. The sum of $4,000 has been added to the original bequest of $6,000 by transfer from income to capital	10, 000. 00

Schedule C–1 (a).—*Trust and endowment funds as at June 30, 1946*—Con.

B. Principal of funds, the income from which may be used for specifically designated purposes—Continued	
Smith Fund: Gift of Mrs. J. Lawrence Smith in 1884 in memory of her husband, a former member of the Academy, to found the J. Lawrence Smith Gold Medal to be awarded for important investigations of meteoric bodies and to assist, by grants of money, researches concerning such objects	$10,000.00
Thompson Fund: Gift of Mrs. Mary Clark Thompson in 1919, the income thereof to be applied for a gold medal of appropriate design, to be known as the Mary Clark Thompson Gold Medal and to be awarded annually for the most important services to geology and paleontology	10,000.00
Walcott Fund: Gift of Mrs. Mary Vaux Walcott in 1928, in honor of her husband, a former member and president of the Academy, the income thereof to be used for the award of medals and honoraria to persons, the results of whose published researches, explorations, and discoveries in pre-Cambrian or Cambrian life and history, shall be judged most meritorious; the award to be known as the Charles Doolittle Walcott Medal and to be made every five years	5,000.00
Watson Fund: Bequest of James Craig Watson, a member of the Academy (1874), for the promotion of astronomical science through the award of the Watson Gold Medal and grants of money in aid of research	25,000.00

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1946*

		Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current general funds:									
National Academy of Sciences:									
Carnegie Endowment Fund, income		$153,538.77	$153,096.43						$442.34
Academy general fund		2,114.84	214.10			$1,840.00			60.74
Agassiz Fund, income		2,689.38	2,689.38						
Nealley Fund, income		1,052.02	1,052.02						
		159,395.01	157,051.93			1,840.00			503.08
National Research Council: Council general fund		18,706.40	5,845.55		[1] $11,101.76		$1,206.33	$181.00	371.76
Total current general funds		178,101.41	162,897.48		11,101.76	1,840.00	1,206.33	181.00	874.84
Current restricted funds:									
National Academy of Sciences:									
Government projects:									
Academy emergency grant, Academy Government projects		6,434.02			6,434.02				
(Office of Scientific Research and Development, on account of administrative overhead	$5,146.02								
War Department (DEF Committee)	1,298.00								
Total	6,434.02)								
Research Board, preliminary expenses (Office of Scientific Research and Development)		3,454.29			3,454.29				
Total Government projects (NAS)		9,888.31			9,888.31				
Private grants and other projects:									
Academy Proceedings		1,924.00				1,840.00	84.00		
Bache Fund, income		3,543.11	3,543.11						
Billings Fund, income		1,356.03	1,356.03						
Building site fund		349.21	349.21						
John J. Carty Medal and Award, income		1,345.41	1,345.41						
Comstock Fund, income		789.41	789.41						
Draper Fund, income		537.47	537.47						
Elliot Fund, income		431.27	431.27						
Gibbs Fund, income		298.10	298.10						
Gould Fund, income		1,408.51	1,408.51						
Hartley Fund, income		64.25	64.25						

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[1] **Office of Scientific Research and Development, on account of administrative overhead.**

Joseph Henry Fund, income	2,537.03	2,537.03						
Joint proceedings	3,192.81					3,192.81		
Marsh Fund, income	1,076.04	1,076.04						
Murray Fund, income	537.48	537.48						
National Science Fund	1,445.82	1,445.82						
Retirement Fund, income	2,400.52	2,400.52						
Scientific Publication Fund	9.38						9.38	
Smith Fund, income	857.30	857.30						
Thompson Fund, income	537.47	537.47						
Walcott Fund, income	270.05	270.05						
Watson Fund, income	1,181.84	1,181.84						
Total private grants and other projects (NAS)	26,092.51	20,966.32			1,840.00	3,276.81	9.38	
Total current restricted funds (NAS)	35,980.82	20,966.32		9,888.31	1,840.00	3,276.81	9.38	
National Research Council:								
Government projects:								
Division of Engineering and Industrial Research:								
Highway Research Board (Public Roads Administration).	20,000.00			20,000.00				
Metallurgical advisory committee (OSRD) (Office of Scientific Research and Development).	96,195.83			96,195.83				
Quartermaster Corps problems (War Department).	652,316.11			652,316.11				
Board for Prosthetic and Sensory Devices (Office of Scientific Research and Development $6,322.71 War Department 357,879.66 Total 364,202.37)	364,202.37			364,202.37				
Coast Guard problems (U. S. Coast Guard)	31,138.99			31,138.99				
Surplus aircraft engine survey (Reconstruction Finance Corporation).	24,472.51			24,472.51				
Division of Medical Sciences:								
Committees on military medicine (Office of Scientific Research and Development)	89,231.62			89,231.62				
Medical food requirements (Department of Agriculture)	166.66			166.66				
Committee on civil aviation medicine (Civil Aeronautics Administration)	5,000.00			5,000.00				
Insect control committee (Office of Scientific Research and Development)	53,974.08			53,974.08				
Division of Biology and Agriculture:								
Food and Nutrition Board (Department of Agriculture)	12,222.18			12,222.18				
Committee on food composition (War Department)	16,732.45			16,732.45				
Committee on control of deterioration (Navy Department)	9,762.40			9,762.40				

SCHEDULE C-2—*Statement of income for the year ended June 30, 1946*—Continued

	Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued								
National Research Council—Continued								
Government projects—Continued								
Division of Anthropology and Psychology:								
Aircraft pilots, 1943	$612.99							$612.99
Aircraft pilots, 1945 (Civil Aeronautics Administration)	28,466.67			$28,466.67				
Aircraft pilots, 1946 (Civil Aeronautics Administration)	50,000.00			50,000.00				
Committee on food habits (Department of Agriculture)	4,768.74			4,768.74				
Committee on applied psychology and the war (Office of Scientific Research and Development)	4,576.26			4,576.26				
Executive board. Committee on fortification design (War Department)	1,985.58			1,985.58				
Total Government projects (NRC)	1,465,825.44			1,465,212.45				612.99
Private grants and other projects (NRC):								
Division of Physical Sciences:								
Rotating fund, physics committees	1,463.83					$303.05	$1,160.78	
Revolving fund for publication of mathematical books	210.12						210.12	
Revolving fund for publication of mathematical tables	57.50					57.50		
Journal of Mathematical Tables	1,773.00					1,773.00		
Division of Engineering and Industrial Research:								
Highway Research Board	90,968.21		750.00		$8,929.93	5,397.28		[2] 75,891.00
The Asphalt Institute $150								
National Slag Association 50								
Calcium Chloride Association 550								
750								
Nonrigid pavement project (Asphalt Institute)	850.00		850.00					
Calcium chloride stabilization (Calcium Chloride Association)	2,200.00		2,200.00					
Division of Chemistry and Chemical Technology:								
Committee on chemical data for ceramists	186.00					186.00		
Committee on catalysis	27.00						27.00	
Division of Geology and Geography:								
Research fund, committee on sedimentation	27.10					27.10		
Ore deposits as related to structural features	444.68						444.68	

Division of Medical Sciences:								
Sex research fund (Rockefeller Foundation)	**46,653.81**		46,653.81					
Fellowships in medicine (Rockefeller Foundation)	**10,167.22**		10,167.22					
Committee on endocrinology (John and Mary R. Markle Foundation)	**26,988.61**		26,988.61					
Fellowships in virus studies and orthopedics (National Foundation for Infantile Paralysis)	**50,000.00**		50,000.00					
Welch fellowships (Rockefeller Foundation)	**11,436.43**		11,436.43					
Committee on growth (American Cancer Society)	**175,640.55**		175,640.55					
Fellowships in anesthesia (American Society of Anesthesiologists, Inc.)	**13,000.00**		13,000.00					
Streptomycin clinical testing program	**665,674.60**		665,674.60					
(Abbott Laboratories, Inc. $63,128.05								
Commercial Solvents Co. 46,166.05								
Heyden Chemical Co. 63,128.06								
Eli Lilly & Co. 76,166.05								
Merck & Co. 46,166.05								
Parke Davis & Co. 63,128.06								
Chas. Pfizer & Co. 76,166.06								
Schenley Laboratories, Inc. 63,128.06								
E. R. Squibb & Co. 76,166.05								
The Upjohn Co. 46,166.06								
Wyeth, Inc. 46,166.05								
665,674.60)								
Division of Biology and Agriculture:								
Food and Nutrition Board	**10,000.00**		10,000.00					
(Research Corp. $5,000								
Mayo Properties Association 5,000								
Total 10,000)								
Committee on animal nutrition	**73.14**					73.14		
Nutrition Foundation Fund (Nutrition Foundation, Inc.)	**5,036.12**		5,000.00			36.12		
Committee on nutritional aspects of ageing (Josiah Macy, Jr., Foundation)	**5,000.00**		5,000.00					
Agricultural Board	**19,200.00**		19,200.00					
(Swift & Co. $18,000								
Central purposes fund (NRC) 1,200								
Total 19,200)								
General account, Food and Nutrition Board	**1,187.16**					1,187.16		
Division of Anthropology and Psychology:								
National intelligence tests	**303.15**						303.15	
Child development abstracts	**4,168.35**					4,168.35		
Directory of Anthropologists	**15.60**					15.60		
Office of Psychological Personnel (American Psychological Association)	**5,000.00**		5,000.00					
Textbook in Military Psychology Fund	**3,809.94**						3,809.94	

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[2] Subscriptions to Correlation Service by highway departments of various States.

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1946*—Continued

		Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued									
National Research Council—Continued									
Private grants and other projects (NRC)—Con.									
Executive Board:									
International Critical Tables		$4,300.50						$4,300.50	
Annual tables		991.78		$667.50			$324.28		
(General Electric Co	$500.00								
The Chemical Foundation	67.50								
Battelle Memorial Institute	100.00								
Total	667.50)								
Central purposes fund		−2,600.00		−2,600.00					
Office of Scientific Personnel		11,011.00		11,000.00			11.00		
(Engineering Foundation, Inc	$1,500								
American Mathematical Society	1,500								
American Psychological Association	1,000								
Geological Society of America	3,000								
American Institute of Physics	3,000								
Carnegie Corporation of New York	1,000								
Total	11,000)								
Fellowships in the natural sciences (Rockefeller Foundation)		46,011.93		46,011.93					
Library book fund		1,788.04	1,788.04						
American Geophysical Union (Rockefeller Foundation)		7,000.00		7,000.00					
Industrial Research Laboratories		4,367.02					4,367.02		
Predoctoral fellowships (Rockefeller Foundation)		105,873.44		105,873.44					
Committee on neurobiology (John and Mary R. Markle Foundation)		2,000.00		2,000.00					
Scientific and technical bibliography		9,971.00		9,971.00					
(Book Publishers' Bureau, Inc	$640								
R. R. Bowker Co	9,331								
Total	9,971)								
Naples Zoological Station		1,200.00		1,200.00					
(Columbia University	$200								
Central purposes fund (NRC)	1,000								
Total	1,200)								

Survey subcommittee, Latin-American Anthropology	1, 200. 00		200. 00					
(Social Science Research Council $400								
American Council of Learned Societies 400								
Central purposes fund (NRC) 400								
Total 1, 200)								
National Bureau of Standards projects:								
Thermal Properties of Liquids:	785. 00		785. 00					
(Purolator Products, Inc $250								
Fram Corp 535								
Total 785)								
Fire resistance of materials (Metal Lath Manufacturing Association)	250. 00		250. 00					
Total private grants and other projects (NRC)	1, 345, 711. 83	1, 788. 04	1, 230, 920. 09		8, 929. 93	17, 926. 60	10, 256. 17	75, 801. 00
Total current restricted funds (NRC)	2, 811, 537. 27	1, 788. 04	1, 230, 920. 09	$1, 465, 212. 45	8, 929. 93	17, 926. 60	10, 256. 17	76, 503. 99
Total current restricted funds (NAS and NRC)	2, 847, 518. 09	22, 754. 36	1, 230, 920. 09	1, 475, 100. 76	10, 769. 93	21, 203. 41	10, 265. 55	76, 503. 99
Grand total	3, 025, 619. 50	185, 651. 84	1, 230, 920. 09	1, 486, 202. 52	12, 609. 93	22, 409. 74	10, 446. 55	77, 378. 83

SCHEDULE C-3.—*Statement of expenses for the year ended June 30, 1946*

	Total	Personal services		Expenses and supplies			Grants and fellowships	Subcontracts
		Salaries and wages	Fees and other	Travel	Publications	Other		
Current general funds:								
National Academy of Sciences:								
Carnegie Endowment Fund, income (for details see schedule C-3a)	$69,556.19	$51,035.47	$3,666.75			$14,853.97		
Academy general fund (for details see schedule C-3a)	86,288.58	64,825.67	3,344.62	$686.77		17,431.52		
Agassiz Fund, income	49.98					49.98		
Nealley Fund, income	19.54					19.54		
	155,914.29	115,861.14	7,011.37	686.77		32,355.01		
National Research Council: Council general fund (for details see schedule C-3a)	77,026.12	50,165.91	12,111.00	7,869.53	$3,098.46	3,781.22		
Total current general funds	232,940.41	166,027.05	19,122.37	8,556.30	3,098.46	36,136.23		
Current restricted funds:								
National Academy of Sciences:								
Government projects:								
Academy emergency grant, Academy Government projects	7,149.90		5,326.35	1,186.70		636.85		
Pacific area project	694.94	240.55		450.24		4.15		
Editorial Board on Penicillin	1,499.44	200.00	36.30	1,243.82		19.32		
Total Government projects (NAS)	9,344.28	440.55	5,362.65	2,880.76		660.32		
Private grants and other projects:								
Bache Fund, income	1,565.00					65.00	$1,500.00	
Billings Fund, income	25.25					25.25		
Building site fund	9.42					9.42		
Building and grounds repair fund	10,278.56	6,762.89	826.20			2,689.47		
John J. Carty Medal and award, income	24.99					24.99		
Comstock Fund, income	3,031.50					31.50	3,000.00	
Draper Fund, income	651.21					351.21	300.00	
Elliot Fund, income	1,210.77					1,210.77		
Gibbs Fund, income	5.54					5.54		
Gould Fund, income	1,129.52					29.52	1,100.00	
Hartley Fund, income	111.64					111.64		
Joseph Henry Fund, income	1,122.15					47.15	1,075.00	
Joint proceedings	7,062.84	750.00	410.00		4,802.60	1,100.24		
Marsh Fund, income	19.98					19.98		
Murray Fund, income	9.99					9.99		
National Science Fund	10,043.81	2,124.52	10.00	413.23		96.06	7,400.00	
President's secretarial expense	75.00		75.00					

Research Board, preliminary expenses	776.59	574.16				202.43		
Retirement fund, income	2,244.62	2,200.00				44.62		
Special insurance fund	700.00					700.00		
Smith Fund, income	77.53			13.74		63.79		
Thompson Fund, income	1,070.58					820.58	250.00	
Walcott Fund, income	5.04					5.04		
Watson Fund, income	25.24					25.24		
Total private grants and other projects (NAS)	41,276.77	12,411.57	1,321.20	426.97	4,802.60	7,689.43	14,625.00	
Total current restricted funds (NAS)	50,621.05	12,852.12	6,683.85	3,307.73	4,802.60	8,349.75	14,625.00	
National Research Council:								
Government projects:								
Division of Engineering and Industrial Research:								
Highway Research Board	20,000.00	20,000.00						
Metallurgical advisory committee (OSRD)	130,668.47	66,807.39	25,644.81	15,594.65		22,621.62		
War metallurgy committee (WPB)	3,724.44	995.44	2,232.86	388.34		107.80		
Quartermaster Corps problems	679,510.13	17,477.83	2,216.65	11,527.20		3,752.69		644,535.76
Aluminum salvage project	4,419.27		1,444.36	741.24		2,233.67		
Board for Prosthetic and Sensory Devices	246,446.43	26,827.03	376.17	10,091.58		8,165.36		200,986.29
Coast Guard problems	27,485.96			479.70		23.57		26,982.69
Surplus aircraft engine survey	24,472.51							24,472.51
Ship Welding Research	5,015.83	3,496.17		1,086.93		432.73		
Division of Medical Science:								
Committees on military medicine	91,827.44	38,369.90	5,815.06	29,015.39		18,627.09		
Committee on materials in medicine and surgery	744.45	166.66				577.79		
Medical food requirements	250.00	250.00						
Committee on civil aviation medicine	4,158.10	3,053.39	1.00	967.92		135.79		
Insect control committee	69,189.70	56,471.26	69.00	6,507.62		6,141.82		
Veterans' medical problems	1,933.06	1,538.16		394.90				
Division of Biology and Agriculture:								
Food and Nutrition Board	6,861.86	4,592.94		2,212.92		56.00		
Committee on food composition	19,956.61	10,276.77		2,678.38		1,481.19		5,520.27
Committee on control of deterioration	20,424.74	16,763.51		694.82		2,966.41		
Division of Anthropology and Psychology:								
Aircraft pilots, 1942	109.74			40.00		69.74		
Aircraft pilots, 1943	380.40		337.50			116.06	−73.16	
Aircraft pilots, 1944	1,051.03		458.05			2.02	590.96	
Aircraft pilots, 1945	59,053.92	6,660.22	928.85	1,646.98		4,704.86	45,113.01	
Aircraft pilots, 1946	35,973.48	13,286.99	904.50	2,241.76		9,990.23	9,550.00	
Committee on food habits	1,841.51	79.00	79.50			1,683.01		
Committee on applied psychology and the war	6,068.06		2,732.37	221.26		118.08		2,996.35
Executive Board:								
Bibliographic Service to Central and South America	5,776.40	3,862.84				1,913.56		
Scientific and technical bibliography	12,645.83	2,052.61	1,005.12	4.68	9,435.54	147.88		
Total Government projects (NRC)	1,479,989.37	293,028.11	44,245.80	86,536.27	9,435.54	86,068.97	55,180.81	905,493.87

SCHEDULE C-3.—*Statement of expenses for the year ended June 30, 1946*—Continued

	Total	Personal services		Expenses and supplies			Grants and fellowships	Subcontract
		Salaries and wages	Fees and other	Travel	Publications	Other		
urrent restricted funds—Continued								
National Research Council—Continued								
Private grants and other projects (NRC):								
Division of Physical Sciences: Journal of Mathematical Tables	$2,110.45		$134.03	$7.93	$1,785.38	$183.11		
Division of Engineering and Industrial Research:								
Highway Research Board	51,539.25	$23,767.79	230.00	9,959.17	9,584.61	7,997.68		
Nonrigid pavement project	1,755.90	1,041.66				714.24		
Committee on fatigue in industry	1,273.54	1,114.00	111.67			47.87		
Calcium chloride stabilization	2,281.41	1,266.00	500.00	515.41				
Division of Geology and Geography: Ore deposits as related to structural features	444.68						$444.68	
Division of Medical Sciences:								
Sex Research Fund	46,819.68	1,836.00		567.12		62.91	44,353.65	
Fellowships in medicine	11,724.54	636.00		479.02		276.05	10,333.47	
Committee on endocrinology	27,982.29	658.00		453.96		89.72	26,780.61	
Fellowships in virus studies and orthopedics	11,985.44	324.00		556.46		188.33	10,916.65	
Special medical committees, Carnegie Corp	−454.43		65.00	−526.50		7.07		
Welch fellowships	12,768.59	228.40		1,017.08		69.11	11,454.00	
War medical information	27,559.57	25,858.61	233.84	6.56		1,460.56		
Committee on growth	97,781.00	17,253.58	1,594.28	22,586.16		6,218.78	50,128.20	
Fellowships in anesthesia	216.91	129.60		41.28		46.03		
Streptomycin clinical testing program	403,406.61		2,847.16	62.44		400,497.01		
Division of Biology and Agriculture:								
Committee on animal nutrition	.60					.60		
National livestock and meat board fellowships	−527.50						−527.50	
Committee on human heredity	1,351.52						1,351.52	
Food and Nutrition Board	2,495.66			65.83	1,422.00	1,017.38	−9.55	
Nutrition Foundation Fund	7,162.65	166.66		2,802.12	1,305.27	2,888.60		
Milbank Memorial Fund	7,747.49	5,061.38		866.02		1,820.09		
Committee on nutritional aspects of ageing	7,051.37		3,356.45	773.55		2,921.37		
Joint committee on forestry	150.55		132.00			18.55		
Agricultural Board	2,068.69			1,601.51		467.18		
General account, Food and Nutrition Board	10,696.69					10,696.69		
Division of Anthropology and Psychology:								
Child development abstracts	4,253.18	3,336.00				917.18		
Office of psychological personnel	4,876.99	3,239.83	86.50	268.55		1,282.11		
Textbook in military Psychology Fund	401.29	312.50	12.35	66.44		10.00		

Executive Board:								
Annual tables	5, 280. 82	4, 602. 50				678. 32		
Committee on scientific aids to learning	13, 548. 09	13, 711. 61					−163. 52	
Subcommittee on individual hearing aids	903. 92	400. 00	188. 33			315. 59		
Ethnogeographic Board, joint fund	9, 023. 74	6, 453. 39	1, 544. 00	561. 98		464. 37		
Central purposes fund	17, 181. 97	600. 01	145. 28	12, 618. 92		1, 817. 76	2, 000. 00	
Office of Scientific Personnel	13, 679. 43	11, 893. 66		768. 60		1, 017. 17		
Scientific and technical bibliography	9, 564. 46				9, 564. 46			
Fellowships in the natural sciences	36, 187. 05	1, 670. 47		1, 482. 25		548. 56	32, 485. 77	
Library book fund	408. 93					408. 93		
American Geophysical Union	7, 000. 00						7, 000. 00	
Industrial Research Laboratories	3, 569. 33	3, 349. 59				219. 74		
Predoctoral fellowships	98, 950. 04	2, 731. 59	27. 67	739. 41		1, 929. 86	93, 521. 51	
Committee on neurobiology	1, 064. 41			1, 043. 70		20. 71		
Naples Zoological Station	331. 50					331. 50		
Survey subcommittee, Latin-American anthropology	39. 89		24. 75			15. 14		
National Bureau of Standards projects:								
Acoustic properties of materials	66. 84			62. 64		4. 20		
Thermal properties of liquids	7. 07	7. 07						
Fire resistance of materials	399. 20	259. 76	31. 00			108. 44		
Thermal investigations	105. 82			105. 82				
Ignition research	542. 39	542. 39						
Construction of high-precision standards	135. 95		135. 95					
Investigation of high-strength reinforcement of concrete	273. 50					273. 50		
Strength of metals	2, 473. 73	2, 458. 83				14. 90		
Total private grants and other projects (NRC)	967, 662. 69	134, 910. 88	11, 400. 26	59, 553. 43	23, 661. 72	448, 066. 91	290, 069. 49	
Total current restricted funds (NRC)	2, 447, 652. 06	427, 938. 99	55, 646. 06	146, 089. 70	33, 097. 26	534, 135. 88	345, 250. 30	905, 493. 87
Total current restricted funds (NAS and NRC)	2, 498, 273. 11	440, 791. 11	62, 329. 91	149, 397. 43	37, 899. 86	542, 485. 63	359, 875. 30	905, 493. 87
Grand total	2, 731, 213. 52	606, 818. 16	81, 452. 28	157, 953. 73	40, 998. 32	578, 621. 86	359, 875. 30	905, 493. 87

Schedule C–3a.—*General fund expenditures for the year ended June 30, 1946*

		Personal services	Expenses and supplies	Total
Carnegie endowment fund—income:				
Financial advisory service		$3, 600. 00	$47. 31	$3, 647. 31
Depreciation of equipment			3, 000. 00	3, 000. 00
Building and grounds:				
Office of the custodian		3, 000. 00	14. 75	3, 014. 75
Operation and maintenance		48, 102. 22	11, 791. 91	59, 894. 13
(Steam heating	$2, 439. 55			
Electricity	2, 357. 81			
Gas	9. 00			
Repairs and maintenance	2, 532. 37			
Insurance	1, 756. 11			
Other	2, 697. 07			
	11, 791. 91)			
Total (exhibit C)		54, 702. 22	14, 853. 97	69, 556. 19
Academy general fund:				
Council of the Academy		2, 828. 34	948. 97	3, 777. 31
Executive offices		11, 042. 08	1, 414. 15	12, 456. 23
Business office		35, 303. 57	2, 436. 17	37, 739. 74
Telephone service		5, 472. 00	199. 58	5, 671. 58
Receiving and duplicating department		10, 340. 68	839. 59	11, 180. 27
Election of members		82. 62	1, 262. 36	1, 344. 98
Meetings of the Academy		9. 00	1, 494. 26	1, 503. 26
Memoirs, editorial and biographical		92. 00	2, 301. 74	2, 393. 74
Financial advisory service			8. 55	8. 55
Pensions and retirement plan		3, 000. 00	4, 172. 38	7, 172. 38
Stores inventory (net purchases)			2, 491. 61	2, 491. 61
Telephone and telegraph, reimbursable (to be reimbursed by other funds)			548. 93	548. 93
Total (exhibit C)		68, 170. 29	18, 118. 29	86, 288. 58
Council general fund:				
Executive board			697. 69	697. 69
Chairman's office		17, 110. 55	2, 370. 73	19, 481. 28
Publications		129. 85	4, 293. 30	4, 423. 15
Reference library		5, 292. 00	707. 78	5, 999. 78
Financial advisory service			151. 83	151. 83
Divisions:				
Foreign relations			465. 57	465. 57
Physical sciences		2, 245. 31	275. 18	2, 520. 49
Engineering and industrial research		3, 169. 44	186. 68	3, 356. 12
Chemistry and chemical technology		4, 034. 00	479. 18	4, 513. 18
Geology and geography		5, 497. 83	1, 376. 43	6, 874. 26
Medical sciences		8, 484. 00	1, 119. 21	9, 603. 21
Biology and agriculture		9, 399. 39	1, 991. 93	11, 391. 32
Anthropology and psychology		6, 914. 54	2, 246. 58	9, 161. 12
Subtotal		62, 276. 91	16, 362. 09	78, 639. 00
Less reimbursement for telephone expenses incurred prior to July 1, 1945			−1, 612. 88	−1, 612. 88
Total (exhibit C)		62, 276, 91	14, 749. 21	77, 026. 12

Report of the Auditing Committee

September 30, 1946.

Dr. Frank B. Jewett,
President, National Academy of Sciences,
Washington, D. C.

Dear Dr. Jewett: In accordance with bylaw V–5 of the National Academy of Sciences, the auditing committee engaged the services of Arthur Andersen & Co., accountants and auditors, Washington, D. C., to make the annual audit of the accounts of the treasurer of the Academy (including the National Research Council).

The auditors have completed their examination and have submitted their certificate together with the financial statements as of June 30, 1946. The auditing committee has reviewed this report and recommends (1) its acceptance as in compliance with the governing bylaw, and (2) that the auditors' certificate be published with the report of the Treasurer.

Respectfully submitted,

LYMAN J. BRIGGS,
ALEXANDER WETMORE,
JNO. A. FLEMING, *Chairman.*

SEPTEMBER 23, 1946.

To the Auditing Committee, National Academy of Sciences:

We have examined the balance sheet (exhibit A) of the National Academy of Sciences, including the National Research Council, as at June 30, 1946, and the statements of capital accounts, fund transactions, and investments (exhibits B, C, and D) for the year ended that date; have reviewed the system of internal control and the accounting procedures of the Academy; and, without making a detailed audit of the transactions, have examined or tested accounting records of the Academy and other supporting evidence, by methods and to the extent we deemed appropriate. Our examination was made in accordance with generally accepted auditing standards applicable in the circumstances and included all procedures which we considered necessary.

Our examination included but was not limited to the following: Cash in banks was reconciled with amounts confirmed directly to us by the depositories; petty cash and stamp funds were counted by us or confirmed directly by the custodians; bonds, stocks, and mortgages reported by the treasurer as owned by the Academy were confirmed to us by the custodian, the Bank of New York; receipts from grants and contracts were checked to cash vouchers and original correspondence on a test basis and certain larger amounts were confirmed directly to us by the grantors; income from investments was tested by reference to financial publications and other data; representative vouchers covering disbursements for the account of the Academy and the authority therefor were examined and compared with the treasurer's record of expenditures; and a review was made to determine the adequacy of the accounting practices and controls of the Academy and the essential accuracy of its records.

Beginning with the fiscal year 1945, the current provision and accumulated reserve for depreciation of equipment were recorded in the accounts, but depreciation of the building has not been so recognized inasmuch as the Academy deems a provision for such depreciation as unnecessary since funds for replacement of the building will be obtained, when required, from contributions.

With a reservation as to depreciation of the building as discussed in the preceding paragraph, in our opinion, the accompanying balance sheet and related statements of capital accounts, fund transactions, and investments present fairly the position of the National Academy of Sciences, including the National Research Council, at June 30, 1946, and the results of its current operations and the changes in capital accounts for the year ended that date and are in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ARTHUR ANDERSEN & CO.

WASHINGTON, D. C.

APPENDIX A

NATIONAL ACADEMY OF SCIENCES

1. CONSTITUTION

[As amended and adopted Apr. 17, 1872, and further amended Apr. 20, 1875; Apr. 21, 1881; Apr. 19, 1882; Apr. 18, 1883; Apr. 19, 1888; Apr. 18, 1895; Apr. 20, 1899; Apr. 17, 1902; Apr. 18, 1906; Nov. 20, 1906; Apr. 17, 1907; Nov. 20, 1907; Apr. 20, 1911; Apr. 16, 1912; Apr. 21, 1915; Nov. 11, 1924; Nov. 9, 1925; Oct. 18, 1927; Nov. 18, 1929; Sept. 18, 1930; Apr. 24, 1933; Apr. 27, 1936; Apr. 28, 1937; Apr. 22, 1940; Oct. 26, 1942]

PREAMBLE

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States, on the 3d day of March A. D. 1863, and in conformity with amendments to said act approved July 14, 1870, June 20, 1884, and May 27, 1914, the National Academy of Sciences adopts the following amended constitution and bylaws:

ARTICLE I.—OF MEMBERS

SECTION 1. The Academy shall consist of members, members emeriti, and foreign associates. Members must be citizens of the United States.

SEC. 2. Members who, from age or inability to attend the meetings of the Academy, wish to resign the duties of active membership may, at their own request, be transferred to the roll of members emeriti by a vote of the Academy.

SEC. 3. The Academy may elect 50 foreign associates.

SEC. 4. Members emeriti and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the Academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the Academy.

ARTICLE II.—OF THE OFFICERS

SECTION 1. The officers of the Academy shall be a president, a vice president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of 4 years, by a majority of votes present, at the annual meeting of the year in which the current terms expire. The date of expiration of the terms of office shall be June 30. In case of a vacancy the election shall be held in the same manner at the meeting when such vacancy occurs or at the next stated meeting thereafter, as the Academy may direct, and shall be for a term expiring on June 30 of the fourth year after that in which the election takes place. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the Academy until the next stated meeting of the Academy.

COUNCIL

Sec. 2. The officers of the Academy, together with six members to be elected by the Academy, and the chief executive officer of the National Research Council (provided he be a member of the Academy) shall constitute a Council for the transaction of such business as may be assigned to them by the constitution of the Academy.

EXECUTIVE COMMITTEE

Sec. 3. There shall be an executive committee of the Council of the Academy, composed of seven members, consisting of the president and vice president of the Academy, the chief executive officer of the National Research Council (provided he be a member of the Academy), the home secretary of the Academy, the treasurer of the Academy, and additional members of the Council of the Academy appointed by the president.

Their terms as members of the executive committee shall be coterminous with the term of their other office.

Except those powers dealing with nominations to membership in the Academy, the executive committee between the meetings of the Council shall have all the powers of the Council of the Academy, unless otherwise ordered by the Council.

The members of the executive committee of the Academy shall by virtue of their office be members of the executive board of the National Research Council and shall represent the Academy at all its meetings.

The president and home secretary of the Academy shall, respectively, be chairman and secretary of the executive committee.

In the absence of the president and the vice president or home secretary, the executive committee may select from among its members a chairman or a secretary pro tem.

The executive committee shall keep regular minutes and shall report all of its proceedings to the Council of the Academy for their information.

Unless otherwise ordered by the Council of the Academy or the executive committee, the executive committee shall meet once in each calendar month, and a special meeting may be called at any time by authority of the chairman, on reasonable notice.

Four members of the executive committee shall constitute a quorum. Letter ballots shall not be valid unless ratified at a meeting.

CUSTODIAN OF BUILDINGS AND GROUNDS

Sec. 4. On recommendation of the president, the Council of the Academy shall appoint a custodian of buildings and grounds, who, except where otherwise provided in the constitution and bylaws, shall have custody of all buildings, grounds, furniture, and other physical property belonging to the National Academy of Sciences or the National Research Council, or entrusted to their care.

He shall be responsible for and shall manage and administer these under such generic rules as the Council of the Academy may make and shall approve all vouchers for pay rolls and disbursements that come under authorized budget items or are specifically authorized by the Council of the Academy for the maintenance and operation of the Academy's and the Research Council's physical property.

He shall hold office at the pleasure of the Council of the Academy and shall receive such salary as it may agree and shall give such bond for the faithful performance of his duties as it may require.

He shall prepare and present to the finance committee of the Academy the buildings and grounds division of the general budget.

ADVISORY COMMITTEE ON BUILDINGS AND GROUNDS

He shall be chairman of a joint advisory committee of five on buildings and grounds, of which two members shall be appointed by the president of the Academy from the Academy Council, and two from the executive board of the National Research Council, which committee shall decide, subject to the approval of the Council of the Academy, all questions of allocation of space and use of public rooms.

FINANCE COMMITTEE

SEC. 5. There shall be a finance committee, of which the treasurer shall be chairman, consisting of the president of the Academy (or in his absence the vice president), the treasurer, the chief executive officer of the National Research Council (provided he be a member of the Academy), and two or three other members of the Academy appointed by the president, one of whom shall be a member of the executive board of the National Research Council.

It shall be the duty of the finance committee to provide for the safe custody of all financial resources of the Academy and to determine all matters relating to the purchase and sale of its securities.

It shall be the further duty of the finance committee to prepare and present to the Council of the Academy for adoption the "general budget," made up of the three "divisional budgets," of the Academy proper, of the Research Council, and of buildings and grounds, which divisional budgets shall be presented to the finance committee, respectively, by the treasurer, the chief executive officer of the National Research Council, and the custodian of buildings and grounds.

The finance committee shall be empowered to employ competent investment counsel (hereinafter called the financial advisor) to advise with the committee upon the purchase and sale of all securities, mortgages, or other investments.

PRESIDENT

SEC. 6. The president of the Academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the Academy, of the Academy Council, and of the executive board of the National Research Council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members or other persons especially conversant with the subjects, and report thereon to the Academy at its meeting next ensuing; and, with the Council, shall direct the general business of the Academy.

GOVERNMENT REQUESTS

The president shall be ex officio a member of all committees empowered to consider questions referred to the Academy by the Government of the United States.

SECRETARIES

SEC. 7. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and Council in cases of doubt, and reporting their action to the Academy at one of the stated meetings in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

It shall be the duty of the home secretary to keep the minutes of each business and scientific session, and after approval to enter these upon the permanent records of the Academy.

TREASURER

SEC. 8. The treasurer shall attend to all receipts and disbursements of the Academy, giving such bond and furnishing such vouchers as the Council may require. He shall collect all dues, assessments, and subscriptions, and keep a set of books showing a full account of receipts and disbursements and the condition of all funds of the Academy. He shall be the custodian of the corporate seal of the Academy.

ADMINISTRATIVE COMMITTEE, NATIONAL RESEARCH COUNCIL

SEC. 9. The president, vice president, home secretary, and treasurer shall be members of the administrative committee of the National Research Council and shall represent the Academy at all its meetings.

ARTICLE III.—OF THE MEETINGS

ACADEMY

SECTION 1. The Academy shall hold one stated meeting, called the annual meeting, in April of each year in the city of Washington, and another stated meeting, called the autumn meeting, at a place to be determined by the Council. The Council shall also have power to fix the date of each meeting.

Special business meetings of the Academy may be called, by order of eight members of the Council, at such place and time as may be designated in the call.

Special scientific meetings of the Academy may be held at times and places to be designated by a majority of the Council.

SEC. 2. The names of the members present at each session of a meeting shall be recorded in the minutes, and 20 members shall constitute a quorum for the transaction of business.

SEC. 3. Scientific sessions of the Academy, unless otherwise ordered by a majority of the members present, shall be open to the public; sessions for the transaction of business shall be closed.

COUNCIL OF THE ACADEMY

SEC. 4. Stated meetings of the Council shall be held during the stated or special meetings of the Academy, and four members shall constitute a quorum for the transaction of business. Special meetings of the Council may be convened at the call of the president and two members of the Council or of four members of the Council.

DUES IN ARREARS

SEC. 5. No member whose dues are in arrears shall vote at any business meeting of the Academy.

ARTICLE IV.—OF ELECTIONS AND REGULATIONS

SECTION 1. All elections of officers and members shall be by ballot, and each election shall be held separately.

SEC. 2. The time for holding an election of officers shall be fixed by the Academy at least 1 day before the election is held.

COUNCIL OF THE ACADEMY

SEC. 3. The election of six members of the Council shall be as follows:

At the annual meeting in April 1907, six members of the Council to be elected, of whom two shall serve for 3 years, two for 2 years, and two for 1 year, their respective terms to be determined by lot. Each year thereafter the terms of two members shall expire and their successors, to serve for 3 years, shall be elected at the annual meeting in each year. The date of expiration of the terms shall be June 30.

SECTIONS

SEC. 4. The Academy shall be divided by the Council into sections representing the principal branches of scientific research. Each section shall elect its own chairman to serve for 3 years. The chairman shall be responsible to the Academy for the work of his section.

ADVISORY COMMITTEE ON MEMBERSHIP

To provide that the Academy shall be more adequately representative of the potential scientific effort of the country and better able to discharge its obligations to Government, the Council of the Academy, acting with the chairmen of the sections, shall be an advisory committee on membership which shall recommend numbers of new members to the various sections. The numbers thus recommended to a section are to be for 3 years in advance. The advisory committee on membership may organize temporary nominating groups either by subdividing a present section into two or more groups or by forming new intersectional or extrasectional groups to which numbers of new members may be assigned. Such temporary nominating groups may then nominate new members in accordance with the rules laid down for sections.

NOMINATIONS

Nominations to membership in the Academy shall be made in writing and approved by two-thirds of the members voting in a section on the branch of research in which the person nominated is eminent, or by a majority of the Council, or by a majority (however distributed) of the members voting in any two sections. The nomination shall be sent to the home secretary by the chairman of the section before January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the Academy.

ELECTION PROCEDURE

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which must be transmitted to the home secretary at least two weeks in advance of the annual meeting, and a final ballot, to be taken at the meeting.

PREFERENCE BALLOT

Preference ballot.—From the list of nominees submitted by the home secretary, each member shall select and inscribe on a ballot, to an extent not greater than one-half nor less than one-third the list, those names which he prefers, as these limits shall be interpreted by the home secretary in his discretion, and announced by him, no weight being attached to the order of the names, and ballots not complying with these requirements being discarded. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

After the preference list has been made up in the manner stated, the president, acting for the Council, may request permission to advance one or more nominees to a higher place on grounds of the general interests of the Academy. If a majority of the members of the Academy present favor such an advance it shall be made. The chairman of any section having two or more nominees on the list may, when its first nominee is reached, request the permission of the Academy to interchange the positions (on the preference list) of the nominees of his section, without altering in any way the positions of nominees from other sections. If a majority of the members of the Academy present favor permitting a section to make such interchange of its own nominees, it shall be done before proceeding further with the election.

FINAL BALLOT

A vote shall be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receives two-thirds of the votes cast and not less than 30 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until 30 nominees shall have been elected, or until the total membership of the Academy shall have reached 450, or until the Academy shall terminate the election by vote as provided below. In voting the final ballot, members shall inscribe on the ballot the name of the nominee with either "*yes*" or "*no*" or "*blank*", and only ballots thus inscribed shall be counted. Members appointed as tellers must vote before counting the ballots.

If, however, a nominee receives a majority of the votes of those members voting in the preference ballot he may be declared elected by a two-thirds voice vote.

ELECTION

Not more than 30 members shall be elected at one annual meeting.

It shall be in order at any point in the course of an election to move that the election be closed. If two-thirds of those present vote in favor of such motion, it shall prevail, and the election shall thereupon terminate.

Before and during elections a discussion of the merits of nominees will be in order.

SEC. 6. Every member elected shall accept his membership, personally or in writing, before the close of the next stated meeting after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

FOREIGN ASSOCIATES

SEC. 7. Foreign associates may be nominated by the Council and may be elected at the annual meeting by a two-thirds vote of the members present.

CERTIFICATES OF ELECTION

SEC. 8. A diploma, with the corporate seal of the Academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of membership and to foreign associates on their election.

RESIGNATIONS

SEC. 9. Resignations shall be addressed to the president and acted on by the Academy.

DUES, NONPAYMENT

SEC. 10. Whenever a member has not paid his dues for 4 successive years, the treasurer shall report the fact to the Council, which may report the case to the Academy with the recommendation that the person thus in arrears be declared to have forfeited his membership. If this recommendation be approved by two-thirds of the members present, the said person shall no longer be a member of the Academy, and his name shall be dropped from the roll.

ARTICLE V.—OF SCIENTIFIC COMMUNICATIONS, PUBLICATIONS, AND REPORTS

SCIENTIFIC SESSIONS

SECTION 1. Communications on scientific subjects shall be read at scientific sessions of the Academy, and papers by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

SEC. 2. Any member of the Academy may read a paper from a person who is not a member and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the Council or of the committee on arrangements, or on recommendation by an Academy member and approval by the committee on arrangements.

PUBLICATIONS

SEC. 3. The Academy may provide for the publication, under the direction of the Council, of Proceedings, scientific Memoirs, Biographical Memoirs, and Reports.

PROCEEDINGS

The Proceedings shall be primarily a medium of first publication for original articles, in brief form, of permanent scientific value.

MEMOIRS

The scientific Memoirs shall provide opportunity for the publication of longer and more detailed scientific investigations.

The Biographical Memoirs shall contain an appropriate record of the life and work of the deceased members of the Academy.

ANNUAL REPORT

An annual report shall be presented to Congress by the president and shall contain the annual reports of the treasurer and the auditing committee, a suitable summary of the reports of the committees in charge of trust funds, and a record of the activities of the Academy for the fiscal year immediately preceding, and other appropriate matter. This report shall be presented to Congress by the president after authorization by the Council. It shall also be presented to the Academy at the annual meeting next following.

TREASURER'S REPORT

The treasurer shall prepare a full report of the financial affairs of the Academy at the end of the fiscal year. This report shall be submitted to the Council for approval and afterward presented to the Academy at the next stated meeting. He shall also prepare a supplementary financial statement to December 31 of the ensuing fiscal year for presentation at the annual meeting.

GOVERNMENT REQUESTS

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the Council for approval, except those requested by the Government of the United States which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained.

ARTICLE VI.—OF TRUST FUNDS AND THEIR ADMINISTRATION

TRUSTS

SECTION 1. Devises, bequests, donations, or gifts having for their object the promotion of science or the welfare of the Academy may be accepted by the Council for the Academy. Before the acceptance of any such trust the Council shall consider the object of the trust and all conditions or specifications attaching thereto. The Council shall make a report of its action to the Academy.

MEDALS

SEC. 2. Medals and prizes may be established in accordance with the provisions of trusts or by action of the Academy.

TRUST FUND COMMITTEES

SEC. 3. Unless otherwise provided by the deed of gift, the income of each trust fund shall be applied to the objects of that trust by the action of the Academy on the recommendation of a standing committee on that fund.

ARTICLE VII.—OF ADDITIONS AND AMENDMENTS

Additions and amendments to the constitution shall be made only at a stated meeting of the Academy. Notice of a proposition for such a change must be submitted to the Council, which may amend the proposition and shall report thereon to the Academy. Its report shall be considered by the Academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated meeting, and if it receives two-thirds of the votes cast it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted as if the members were present.

2. BYLAWS

[In accordance with a resolution of the Academy taken at its meeting on April 21, 1915, the bylaws are arranged in groups, and each group is numbered to correspond with the article of the constitution to which it relates]

I

1. The holders of the medal for eminence in the application of science to the public welfare shall be notified, like members, of the meetings of the Academy and invited to participate in its scientific sessions.

2. A foreign associate of the Academy who becomes a citizen of the United States shall have all the privileges and duties of a member of the Academy unless he shall request otherwise, and shall be included in the list of members in the section of his choice.

II

1. The proper secretary shall acknowledge all donations made to the Academy and shall at once report them to the Council for its consideration.

2. The home secretary shall keep a record of all grants of money or awards of prizes or medals made from trust funds of the Academy. The record for each grant of money shall include the following items: Name of fund, date and number of the grant, name and address of recipient, amount of grant, and date or dates of payment, purpose of grant, record of report of progress, and resulting publications.

3. The executive secretary, who may be a nonmember of the Academy, shall receive a salary to be fixed by the Council.

4. The treasurer shall keep the home secretary informed of all warrants received from directors of trust funds not controlled by the Academy and of the date or dates of payment of all warrants.

GOVERNMENT REQUESTS

5. The treasurer is authorized to defray, when approved by the president, all the proper expenses of committees appointed to make scientific investigations at the request of departments of the Government, and in each case to look to the department requesting the investigation for reimbursement to the Academy.

TREASURER, NATIONAL RESEARCH COUNCIL

6. The treasurer is authorized to act as the treasurer ex officio of the National Research Council.

BURSAR

7. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee and be directly responsible to the treasurer.

INVESTMENTS

8. All investments and reinvestments of either principal or accumulations of income of the trust and other funds of the Academy shall be made by the treasurer, in accordance with the decisions of the finance committee, in the corporate name of the Academy, in the manner and in the securities designated or specified in the instruments creating the several funds, or in the absence of such designation or specification, in bonds of the United States or of the several States, or in bonds or notes secured by first mortgages on real estate, in investments legal for savings banks under the laws of Massachusetts or New York, or in other securities recommended by the financial adviser.

The treasurer may invest the capital of all trust funds of the Academy which are not required by the instruments creating such funds to be kept separate and distinct in a consolidated fund, and shall apportion the income received from such consolidated fund among the various funds composing the same in the proportion that each of said funds shall bear to the total amount of funds so invested:

Provided, however, That the treasurer shall at all times keep accurate accounts showing the amount of each trust fund, the proportion of the income from the consolidated fund to which it is entitled, and the expenses and disbursements properly chargeable to such fund.

The treasurer shall have authority, with the approval of the finance committee, to sell, transfer, convey, and deliver in the corporate name and for the benefit of the Academy any stocks, bonds, or other securities standing in the corporate name.

CUSTODIAN OF SECURITIES

9. On the recommendation of the finance committee, the Council shall contract with a bank, trust company, or corresponding fiduciary institution to serve as the custodian of securities, including all of the Academy's personal property in the form of bonds, mortgages, and other securities, to collect the income from them, to protect the Academy in respect to expirations, reissues, and notifications, and to buy or sell securities on the order of the treasurer, as approved by the finance committee.

CONTRACTS

10. No contract shall be binding upon the Academy which has not been first approved by the Council.

DUES

11. The assessments required for the support of the Academy shall be fixed by the Academy on the recommendation of the Council and shall be payable within the calendar year for which they are assessed.

FINANCE COMMITTEE MEETINGS

12. The finance committee may invite to be present at any of its meetings the chief executive officer of the Research Council, the custodian of buildings and grounds, and the bursar, but they shall not vote.

III

MEETINGS

1. At the business sessions of the Academy the order of procedure shall be as follows:

(1) Chair taken by the president, or, in his absence, by the vice president.

(2) Roll of members called by home secretary (first session of the meeting only).

(3) Minutes of the preceding session read and approved.

(4) Stated business.

(5) Reports of president, secretaries, treasurer, and committees.

(6) Business from Council.

(7) Other business.

RULES OF ORDER

2. The rules of order of the Academy shall be those of the Senate of the United States, unless otherwise provided by the constitution or bylaws of the Academy.

3. In the absence of any officer, a member shall be chosen to perform his duties temporarily, by a plurality of viva voce votes, upon open nomination.

DEATHS

4. At each meeting the president shall announce the death of any members since the preceding meeting. As soon as practicable thereafter he shall designate a member to write—or to secure from some other source approved by the president—a biographical notice of each deceased member.

COMMITTEE ON ARRANGEMENTS

5. For the annual meeting a committee of five members, appointed for each meeting, and the home secretary shall constitute the committee on arrangements, of which the home secretary shall be chairman. For the autumn meeting a member of the local group shall be chairman of the committee on arrangements, of which the home secretary shall be a member ex officio.

SCIENTIFIC PROGRAM

It shall be the duty of the committee on arrangements to prepare the scientific program for the annual meeting, and for this purpose it shall be empowered to solicit papers from members or others. It shall also be empowered to ascertain the length of time required for reading papers to be presented at the scientific sessions of the Academy and, when it appears advisable, to limit the time to be occupied in their presentation or discussion.

The committee on arrangements shall meet not less than 2 months previous to each meeting. It shall prepare the detailed program of each day and in general shall have charge of all business and scientific arrangements for the meeting for which it is appointed.

PAPERS—TIME LIMIT

6. No paper requiring more than 15 minutes for its presentation shall be accepted unless by invitation of the committee on arrangements.

No speaker shall occupy more than 30 minutes for presentation of papers during the scientific sessions of a single meeting of the Academy, except by invitation of the committee on arrangements.

Time shall not be extended except by vote of the Academy, and then not to exceed 5 minutes. The presiding officer shall warn speakers 2 minutes before the expiration of their time.

The discussion of individual papers shall be limited not to exceed 5 minutes, and the total time for discussion by any one speaker for all scientific sessions in any one meeting shall not exceed 15 minutes, unless approved by the Academy.

In order that adequate opportunity be given for the discussion of papers on the program, the committee on arrangements shall, in making up the program for the scientific sessions, allot not more than 80 percent of the available time of each session to the actual reading of papers.

If the number of papers accepted is too large to be presented in the scientific sessions, provision shall be made for holding two or more sessions simultaneously.

In arranging the program the committee on arrangements shall group the papers as nearly as practicable according to subject.

No paper shall be entered upon the printed program of scientific sessions unless the title is in the hands of the committee on arrangements at least 2 weeks in advance of the meeting. In the event that titles are received later, they shall be placed in order of receipt at the end of the list and read, if there is time. Such supplementary titles shall be conspicuously posted.

IV

SECTIONS

1. The term of service of each chairman of a section shall be 3 years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor, and to report the results of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms.

PROPOSALS FOR NOMINATION

2. (1) Intersectional: Proposals for nomination to membership may be made in writing by any five members of the Academy and addressed to the home secretary; each such proposal shall be accompanied by a record of the scientific activities of the person proposed and by a list of his principal contributions to science, in triplicate; and with a statement as to the sections to which the name proposed shall be submitted for consideration. Such proposals as have been received by the home secretary prior to October 1 shall upon that date be sent by him to the chairman of each section designated, with a copy of the record and list of contributions.

(2) Sectional: Proposals for nomination to membership shall be in writing and shall be sent to the chairman of the section not later than October 1. The proposal for nomination of any individual will be accepted for consideration by the section only if it is accompanied by a list of titles and references of the more important published scientific articles of the individual and by a factual summary, not over 250 words in length, of his accomplishments.

Each section chairman shall edit material thus received and, at the time of the informal ballot, distribute it, together with the material from the home secretary, relative to intersectional proposals, to the members of the section. The home secretary's office, if called upon, will assist the chairmen of the sections in the multigraphing of this material.

Each chairman shall keep a record of the names listed on the informal ballot and shall strike from the lists those names which were on the list in the previous year and received less than two votes on the informal ballot or had been on the list for 3 consecutive years without receiving in any one of these years on the informal ballot so many as one-fourth of the votes cast (counting the votes according to the number of members in the section who vote and not by the number of persons on the list for whom they vote). The home secretary shall keep a record of the votes on the informal ballots in the case of those persons proposed to two or more sections of the Academy and shall cause such names to be stricken from the lists of all sections if in 3 consecutive years there be no two sections in which the number of votes cast for the proposed nominee exceeds one-sixth of the votes cast in those sections except in case the number should be as many as one-fourth of the votes cast in one section, in which case the proposal should be considered thenceforth as a proposal in that section only. No proposal for nomination which is thus stricken from the list of the informal ballot shall be considered by the section (or sections) unless again proposed for nomination in the appropriate manner in a subsequent year.

NOMINATION BALLOTS

3. The chairman of each section of the Academy shall submit to the members of his section, not later than November 1 of each year, an informal ballot containing in alphabetical order and without indications of rank on ballots of the previous year, the names of all those persons who received not less than two votes in the informal ballot of the preceding year and not less than one-fourth of the votes on the informal ballot in at least one of the preceding 3 years in the case of names on the list for 3 years or have been continued on the list by the home secretary or have been added to the list by him or have been newly proposed for consideration in accordance with the procedure above defined. Each member of the section shall be expected to return his ballot to the chairman within 2 weeks, with his signature and with crosses against the names of those persons whom he is prepared to endorse for nomination. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he judges to be worthy of nomination.

In order to secure an adequate number of nominations the chairman, when necessary, shall obtain by personal solicitation a fuller vote of his section or shall submit to the section a supplementary formal ballot.

The chairman shall then certify to the home secretary, prior to January 1, the names of all persons who have been voted for on the formal ballots, together with a statement of the number of votes each candidate received and of the number of members voting. Of these, all persons who receive the votes of two-thirds of the members voting in the section, in cases voted upon by one section only, or the votes of one-half (however distributed) of the members voting in any two sections, in cases voted upon by more than one section, shall be considered nominated.

A properly edited statement of the accomplishments of each individual nominated to the Academy by the sections shall be sent by the section chairmen to the home secretary along with the nominations of the section. These statements, together with summaries pertaining to those persons nominated intersectionally or nominated by the Council, shall be reproduced and distributed to the members of the Academy at the time of the preference ballot.

Persons nominated to the Academy and rejected by the Academy at the ensuing election may not be further considered by the sections until they have again been proposed for nomination in the appropriate manner in a subsequent year. Persons nominated but not voted upon by the Academy shall without further action be presented to the Academy upon the preference ballot of the next following year; but, if again not voted upon, the nominations shall lapse and not be considered except when renewed in the regular order.

ADVISORY COMMITTEE ON MEMBERSHIP

4. Meetings of the advisory committee on membership shall be held immediately following the election of new members of the Academy at the annual meeting. The president of the Academy shall be chairmen of the advisory committee on membership.

TEMPORARY NOMINATING GROUPS

Members of the Academy who have been asked to serve on temporary nominating groups by the advisory committee on membership shall retain membership in their respective sections and shall be entitled to vote on the informal and formal ballots of their section.

When a temporary nominating group is organized by the advisory committee on membership, the member of the group who is designated as chairman by the advisory committee on membership shall immediately notify all members of the Academy in that group of their assignment by the advisory committee on memberhip as members of the group, listing all members of the group in this notification, and shall further transmit to all members of the group the specifications as prepared by the advisory committee on membership, of the special branch of science which the group is to canvass; and shall then obtain from the members of the group, before October 1, proposals of names of persons in that special branch of science, to be considered in the election of new members by the Academy. Such proposals shall be submitted to the group by the chairman not later than November 1 for informal ballot. The informal and formal ballots shall be governed by the same rules as ballots of sections; and the chairman shall report to the home secretary the results of the formal ballot of the group under the same rules as apply to sections.

PREFERENCE BALLOT

5. Preference ballots for the election of members shall be sealed in a blank envelope, which shall be enclosed in another bearing the name of the sender, and which shall be addressed to the home secretary, who shall cause the ballots to be tabulated for use at the election. If in any case it is impossible to determine who cast the ballot, or if the latter contain more or fewer than the number of names provided for in article IV, section 5, of the constitution, the ballot shall be rejected, but minor

defects in a ballot shall be disregarded when the intent of the voter is obvious.

6. All discussions of the claims and qualifications of nominees at meetings of the Academy shall be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the Academy at the time of the discussion.

7. Members of the Academy are permitted to choose the section with which they wish to be affiliated, and no one shall be a member of more than one section; but this does not preclude service on a temporary nominating group at the request of the advisory committee on membership.

V

PROCEEDINGS

1. The publication of the Proceedings shall be under the general charge of the Council, which shall have final jurisdiction upon all questions of policy relating thereto.

The National Academy of Sciences and the National Research Council shall cooperate in the publication of the Proceedings, beginning with volume VII.

MEMOIRS

2. Memoirs may be presented at any time to the home secretary, who shall report the date of their reception at the next session; but no Memoir shall be published unless it has been read or presented by title before the Academy.

Before publication all Biographical and scientific Memoirs must be referred to the committee on publication, who may, if they deem best, refer any Memoir to a special committee, appointed by the president, to determine whether the same should be published by the Academy.

3. Memoirs shall date in the records of the Academy from the date of their presentation to the Academy, and the order of their presentation shall be so arranged by the secretary that, so far as may be convenient, those upon kindred topics shall follow one another.

TREASURER'S REPORT

4. The annual report of the treasurer shall contain—

(1) A concise statement of the source, object, and amount of all trust funds of the Academy.

(2) A condensed statement of receipts and expenditures.

(3) A statement of assets and liabilities.

(4) Accounts with individual funds.

(5) Such other matter as he considers appropriate.

AUDITING COMMITTEE

5. The accounts of the treasurer shall, between July 1 and October 1 of each year, be audited by public accountants employed by an auditing committee of three members appointed by the president at the annual meeting of the Academy. The public accountants shall

report to the committee, who shall in turn present the report of audit to the Academy at the autumn meeting, together with such comments and recommendations as the committee may deem appropriate. The committee may cause to be made any other examinations of the financial records, the accounting records, and the system of internal control of the Academy which, in its judgment, are necessary for the determination of the adequacy and accuracy of the treasurer's accounts. The report of the treasurer shall be presented to the Academy at the autumn meeting and shall be published with that of the president to Congress and distributed to the members of the Academy in printed form.

VI

PROPERTY

1. All apparatus and other materials of permanent value purchased with money from any grant from a trust fund shall be the property of the Academy unless specific exception is made in the grant or by subsequent action of the Council. Receipts for all such property shall be signed by the grantee and shall be forwarded to the home secretary, who shall file them with the custodian of buildings and grounds. All apparatus and unused material of value acquired in this way shall be delivered to the custodian of buildings and grounds on completion of the investigation for which the grant was made, or at any time on demand of the Council, and the custodian of buildings and grounds shall give an appropriate release therefor.

2. A stamp corresponding to the corporate seal of the Academy shall be kept by the secretaries, who shall be responsible for the due markings of all books and other objects to which it is applicable.

Labels or other proper marks of similar device shall be placed upon objects not admitting of the stamp.

3. The fiscal year of the Academy shall end on June 30 of each year.

STANDING COMMITTEES—RESEARCH FUNDS

4. Standing committees of the Academy on trust funds, the income of which is applied to the promotion of research, shall consist of three or five members. In order to secure rotation in office in such committees, when not in conflict with the provisions of the deeds of gift, the term of service on a committee of three members shall be 3 years; on a committee of five members the term shall be 5 years.

5. The annual reports of the committees on research funds shall, so far as the Academy has authority to determine their form, give a current number to each award, stating the name, position, and address of the recipient; the subject of research for which the award is made and the sum awarded; and in later annual reports the status of the work accomplished under each award previously made shall be announced, until the research is completed, when announcement of its completion, and, if published, the title and place of publication shall be stated, and the record of the award shall be reported as closed.

VII

AMENDMENTS

1. Any bylaw of the Academy may be amended, suspended, or repealed on the written motion of any two members, signed by them, and presented at a stated meeting of the Academy, provided the same shall be approved by a majority of the members present.

3. ORGANIZATION OF THE ACADEMY

JULY 1, 1946

	Expiration of terms
Jewett, Frank B., president	June 30, 1947
Eisenhart, L. P., vice president	June 30, 1949
Bronk, Detlev W., foreign secretary	June 30, 1950
Wright, F. E., home secretary	June 30, 1947
Hunsaker, J. C., treasurer	June 30, 1948

Meid, G. D., acting executive secretary [1]
Meid, G. D., bursar and business manager [1]

ADDITIONAL MEMBERS OF THE COUNCIL [2]

1944–47:	1945–48:	1946–49:
Goodpasture, E. W.	Stanley, W. M.	Miles, W. R.
Langmuir, Irving	Tate, John T.	Rabi, I. I.

EXECUTIVE COMMITTEE OF THE COUNCIL

Jewett, F. B., chairman
Bronk, D. W.[2]
Eisenhart, L. P.
Hunsaker, J. C.
Miles, W. R.
Stanley, W. M.
Wright, F. E.

SECTIONS

1. *Mathematics*

von Neumann, John, chairman (1949)
Albert, A. A.
Alexander, J. W.
Bell, E. T.
Bliss, G. A.
Coble, A. B.
Douglas, Jesse
Eisenhart, L. P.
Evans, G. C.
Jackson, Dunham
Kasner, Edward
Lefschetz, Solomon
Miller, G. A.
Moore, R. L.
Morse, Marston
Murnaghan, F. D.
Ritt, J. F.
Stone, M. H.
Thomas, T. Y.
Vandiver, H. S.
Veblen, Oswald
Walsh, J. L.
Weyl, Hermann
Whitney, Hassler
Zariski, Oscar

2. *Astronomy*

Moulton, F. R., chairman (1947)
Abbot, C. G.
Adams, W. S.
Aitken, R. G.
Anderson, J. A.
Babcock, H. D.
Bowen, I. S.
Fleming, J. A.
Hubble, E. P.
Joy, A. H.
King, A. S.
Leuschner, A. O.
Merrill, P. W.
Mitchell, S. A.
Moore, J. H.
Nicholson, S. B.
Ross, F. E.
Russell, H. N.
Seares, F. H.
Shapley, Harlow
Slipher, V. M.
Stebbins, Joel
Struve, Otto
Trumpler, R. J.
Wright, W. H.

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[1] Not a member of the Academy or of the Council of the Academy.

[2] The constitution of the Academy provides that the chief executive officer of the National Research Council (D. W. Bronk) be a member of the Council of the Academy and also a member of the executive committee of the Council of the Academy, provided he be a member of the Academy.

3. *Physics*

Kemble, E. C., chairman (1948)
Allison, S. K.
Anderson, C. D.
Bainbridge, K. T.
Beams, J. W.
Bethe, H. A.
Birge, R. T.
Breit, Gregory
Bridgman, P. W.
Coblentz, W. W.
Compton, A. H.
Compton, K. T.
Condon, E. U.
Coolidge, W. D.
Crew, Henry
Davis, Bergen
Davisson, C. J.
Dempster, A. J.
DuBridge, L. A.
Einstein, Albert
Epstein, P. S.
Fermi, Enrico
Franck, James
Houston, W. V.
Hull, A. W.
Ives, H. E.
Lauritsen, C. C.
Lawrence, E. O.
Lyman, Theodore
Mason, Max
Merritt, Ernest
Millikan, R. A.
Mulliken, R. S.
Oppenheimer, J. R.
Pierce, G. W.
Piggot, C. S.
Rabi, I. I.
Reichelderfer, F. W.
Rossby, C. G.
Saunders, F. A.
Slater, J. C.
Slichter, L. B.
Stern, Otto
Stewart, G. W.
Sverdrup, H. U.
Tate, J. T.
Tuve, M. A.
Van Vleck, J. H.
Webster, D. L.
Wigner, E. P.
Wilson, E. B.
Wood, R. W.

4. *Engineering*

Jefferies, Zay, chairman (1947)
Adams, C. A.
Briggs, L. J.
Buckley, O. E.
Bush, Vannevar
Cochrane, E. L.
Cottrell, F. G.
Curme, G. O., Jr.
Dryden, H. L.
Dunn, Gano
Durand, W. F.
Fletcher, Harvey
Foote, P. D.
Hoover, Herbert
Hovgaard, William
Hunsaker, J. C.
Jewett, F. B.
Kelly, M. J.
Kettering, C. F.
Lewis, G. W.
Lewis, W. K.
Loomis, A. L.
Merica, P. D.
Slepian, Joseph
Suits, C. G.
Terman, F. E.
Timoshenko, Stephen
von Karman, Theodore
Whitehead, J. B.
Wright, Orville
Zworykin, V. L.

5. *Chemistry*

Marvel, C. S., chairman (1947)
Adams, L. H.
Adams, Roger
Adkins, Homer
Bachmann, W. E.
Bancroft, W. D.
Baxter, G. P.
Bogert, M. T.
Bolton, E. K.
Conant, J. B.
Eyring, Henry
Fieser, L. F.
Fuson, R. C.
Giauque, W. F.
Gilman, Henry
Gomberg, Moses
Hammett, L. P.
Harkins, W. D.
Hildebrand, J. H.
Hudson, C. S.
Hulett, G. A.
Ipatieff, V. N.
Jacobs, W. A.
Johnson, T. B.
Keyes, F. G.
Kharasch, M. S.
Kirkwood, J. G.
Kistiakowsky, G. B.
Kraus, C. A.
La Mer, V. K.
Lamb, A. B.
Langmuir, Irving
Latimer, W. M.
Lind, S. C.
MacInnes, D. A.
Mayer, J. E.
Noyes, W. A., Jr.
Pauling, Linus
Rodebush, W. H.
Scatchard, George
Small, L. F.
Smith, L. I.
Tolman, R. C.
Urey, H. C.
Whitmore, F. C.
Whitney, W. R.
Williams, R. R.
Williams, R. J.
Yost, D. M.

6. *Geology*

Hewett, D. F., chairman (1947)
Allen, E. T.
Berkey, C. P.
Blackwelder, Eliot
Bowen, N. L.
Bowman, Isaiah
Bradley, W. H.
Bucher, W. H.
Buddington, A. F.
Byerly, Perry
Chamberlin, R. T.
Cross, Whitman
Daly, R. A.
Day, A. L.
Dunbar, C. O.
Gregory, W. K.
Gutenberg, Beno
Kelley, W. P.
Knopf, Adolph
Larsen, E. S., Jr.
Lawson, A. C.
Leith, C. K.
Longwell, C. R.
Macelwane, J. B.
Mead, W. J.
Mendenhall, W. C.
Palache, Charles
Reeside, J. B., Jr.
Rubey, W. W.
Ruedemann, Rudolf
Scott, W. B.
Simpson, G. G.
Vaughan, T. W.
Willis, Bailey
Woodring, W. P.
Wright, F. E.

7. *Botany*

Robbins, W. J., chairman (1947)
Allen, C. E.
Babcock, E. B.
Bailey, I. W.
Bailey, L. H.
Beadle, G. W.
Blakeslee, A. F.
Campbell, D. H.
Chandler, W. H.
Cleland, R. E.
Couch, J. N.
Dodge, B. O.
Duggar, B. M.
Emerson, R. A.
Fernald, M. L.
Fred, E. B.
Hoagland, D. R.
Jones, D. F.
Kunkel, L. O.
McClintock, Barbara
Mangelsdorf, P. C.
Merrill, E. D.
Osterhout, W. J. V.
Rhoades, M. M.
Sax, Karl
Sinnott, E. W.
Stadler, L. J.
Stakman, E. C.
Thom, Charles
Van Niel, C. B.
Waksman, S. A.
Walker, J. C.

8. *Zoology and Anatomy*

Wright, Sewall, chairman (1949)
Bigelow, H. B.
Castle, W. E.
Child, C. M.
Conklin, E. G.
Corner, G. W.
Danforth, C. H.
Demerec, Milislav
Detwiler, S. R.
Dobzhansky, Theodosius
Dunn, L. C.
Harrison, R. G.
Hartman, C. G.
Harvey, E. N.
Herrick, C. J.
Jacobs, M. H.
Jennings, H. S.
Kofoid, C. A.
Lewis, W. H.
Lillie, F. R.
Moore, C. R.
Muller, H. J.
Painter, T. S.
Parker, G. H.
Patterson, J. T.
Riddle, Oscar
Romer, A. S.
Smith, P. E.
Sonneborn, T. M.
Streeter, G. L.
Sturtevant, A. H.
Taliaferro, W. H.
Wetmore, Alexander
Willier, B. H.
Wislocki, G. B.
Woodruff, L. L.

9. *Physiology and Biochemistry*

Van Slyke, D. D., chairman (1948)
Anderson, R. J.
Bard, Philip
Bronk, D. W.
Carlson, A. J.
Clark, W. M.
Clarke, H. T.
Cohn, E. J.
Cori, C. F.
Doisy, E. A.
DuBois, E. F.
du Vigneaud, Vincent
Elvehjem, C. A.
Erlanger, Joseph
Evans, H. M.
Fenn, W. O.
Forbes, Alexander
Gasser, H. S.
Hart, E. B.
Hastings, A. B.
Hecht, Selig
Link, K. P.
Loeb, R. F.
McCollum, E. V.
MacNider, W. deB.
Marshall, E. K., Jr.
Maynard, L. A.
Michaelis, Leonor
Northrop, J. H.
Richards, A. N.
Rose, W. C.
Shaffer, P. A.
Sherman, H. C.
Smith, Homer W.
Stadie, W. C.
Stanley, W. M.
Vickery, H. B.
Werkman, C. H.

10. *Pathology and Bacteriology*

Goodpasture, E. W., chairman (1948)
Addis, Thomas
Armstrong, Charles
Avery, O. T.
Blalock, Alfred
Cannon, P. R.
Castle, W. B.
Cole, Rufus
Dochez, A. R.
Dubos, R. J.
Gamble, J. L.
Graham, E. A.
Heidelberger, Michael
Hektoen, Ludvig
Little, C. C.
Loeb, Leo
Long, E. R.
Longcope, W. T.
Meyer, K. F.
Minot, G. R.
Mueller, J. H.
Murphy, J. B.
Novy, F. G.
Opie, E. L.
Paul, J. R.
Rivers, T. M.
Robertson, O. H.
Rous, Peyton
Sabin, Florence
Shope, R. E.
Tyzzer, E. E.
Whipple, G. H.
Wolbach, S. B.

11. *Anthropology and Psychology*

Kidder, A. V., chairman (1947)
Angell, J. R.
Boring, E. G.
Carmichael, Leonard
Graham, C. H.
Hooton, E. A.
Hull, C. L.
Hunter, W. S.
Kroeber, A. L.
Lashley, K. S.
Linton, Ralph
Lowie, R. H.
Miles, W. R.
Pillsbury, W. B.
Schultz, A. H.
Seashore, C. E.
Spier, Leslie
Stevens, S. S.
Stone, C. P.
Swanton, J. R.
Terman, L. M.
Thorndike, E. L.
Thurstone, L. L.
Tolman, E. C.
Tozzer, A. M.
Wever, E. G.
Wissler, Clark
Woodworth, R. S.
Yerkes, R. M.

TEMPORARY NOMINATING GROUPS

(Designated by the Advisory Committee on Membership)

AGRICULTURAL SCIENCE

E. D. MERRILL, chairman (1948)

Chemistry.—W. H. Rodebush.

Geology.—Eliot Blackwelder, W. P. Kelley.

Botany.—I. W. Bailey, W. H. Chandler, B. M. Duggar, E. B. Fred, D. R. Hoagland, L. O. Kunkel, E. D. Merrill, W. J. Robbins, E. W. Sinnott, E. C. Stakman, Cornelis B. Van Niel.

Zoology and anatomy.—W. H. Taliaferro, Sewall Wright.

Physiology and biochemistry.—C. A. Elvehjem, E. B. Hart, L. A. Maynard, W. C. Rose, W. M. Stanley, H. B. Vickery.

Pathology and bacteriology.—R. J. Dubos, R. E. Shope, E. E. Tyzzer.

GEOPHYSICS

JOHN A. FLEMING, chairman (1948)

Mathematics.—F. D. Murnaghan.

Astronomy.—C. G. Abbott, J. A. Fleming, Harlow Shapley.

Physics.—P. W. Bridgman, A. H. Compton, Max Mason, C. S. Piggot, F. W. Reichelderfer, C. G. Rossby, L. B. Slichter, H. U. Sverdrup.

Engineering.—L. J. Briggs, J. C. Hunsaker, T. von Karman.

Chemistry.—L. H. Adams, S. C. Lind.

Geology.—Isaiah Bowman, Perry Byerly, Arthur L. Day, Beno Gutenberg, Adolph Knopf, J. B. Macelwane, T. Wayland Vaughan, F. E. Wright.

Botany.—S. A. Waksman.

Zoology and anatomy.—H. B. Bigelow.

4. STANDING COMMITTEES OF THE ACADEMY

ADVISORY COMMITTEE ON SCIENTIFIC PUBLICATIONS

(Temporary Joint Committee of the Academy and Research Council)

L. P. Eisenhart, chairman; Gregory Breit, W. Mansfield Clark, Harvey Fletcher, E. B. Fred, G. B. Pegram, H. C. Urey, L. H. Weed, E. G. Wever.

AUDITING COMMITTEE

John A. Fleming, chairman; Lyman J. Briggs, Alexander Wetmore.

BIOGRAPHICAL MEMOIRS

G. L. Streeter, chairman; E. G. Conklin, W. F. Durand, E. L. Thorndike, F. E. Wright.

BUILDING AND GROUNDS ADVISORY COMMITTEE (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

G. D. Meid, chairman; D. W. Bronk, R. F. Griggs, A. N. Richards, F. E. Wright.

CALENDAR

F. E. Wright, chairman; Gano Dunn, R. A. Millikan, H. N. Russell.

EXHIBITS (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

F. E. Wright, chairman; Harlow Shapley, member-at-large; the chairman of each of the sections of the Academy; the chairman of each of the Divisions of the Research Council.

Executive committee on exhibits

F. E. Wright, chairman; D. W. Bronk, A. L. Day.

FINANCE COMMITTEE

The treasurer of the Academy, chairman ex officio (J. C. Hunsaker); the president of the Academy, ex officio (F. B. Jewett); the chairman of the Research Council, ex officio (D. W. Bronk); L. P. Eisenhart, Vannevar Bush, W. J. Robbins.

LIBRARY

C. S. Hudson, chairman; W. S. Adams, K. T. Compton, W. D. Harkins, G. H, Parker, W. B. Scott.

Subcommittee on the library

C. S. Hudson, chairman; W. W. Coblentz, vice chairman; G. L. Streeter, J. R. Swanton.

PROCEEDINGS, EDITORIAL BOARD (JOINT BOARD OF ACADEMY AND RESEARCH COUNCIL)

A. Bevan, A. L. Day, L. P. Eisenhart, F. M. Feiker, R. C. Gibbs, E. W. Goodpasture, R. F. Griggs, A. I. Hallowell, L. P. Hammett, F. B. Jewett, A. B. Lamb, E. O. Lawrence, W. R. Miles, W. J. V. Osterhout, F. H. Seares, L. H. Weed. Sewall Wright.

PENSION TRUST AGREEMENT

The president of the Academy, ex officio (F. B. Jewett); the chairman of the Research Council, ex officio (D. W. Bronk); the home secretary of the Academy, ex officio (F. E. Wright); the treasurer of the Academy, ex officio (J. C. Hunsaker). Trustees: F. B. Jewett, G. D. Meid.

PUBLICATIONS OF THE ACADEMY

The president of the Academy, ex officio (F. B. Jewett); the home secretary of the Academy, ex officio (F. E. Wright); E. G. Conklin.

REVISION OF THE CONSTITUTION

E. B. Wilson, chairman; A. L. Day, Gano Dunn.

WEIGHTS, MEASURES, AND COINAGE

Gano Dunn, chairman; G. P. Baxter, R. W. Wood

5. TRUST FUNDS OF THE ACADEMY

AGASSIZ FUND

[$50,000]

General uses of the Academy

ALEXANDER DALLAS BACHE FUND

[$60,000]

Researches in physical and natural science

Board of directors.—E. B. Wilson, chairman; W. J. V. Osterhout, Sewall Wright.

BARNARD MEDAL FOR MERITORIOUS SERVICE TO SCIENCE[1]

Discoveries in physical or astronomical science or novel application of science to purposes beneficial to the human race

Committee.—Edwin P. Hubble, chairman; Bergen Davis, A. L. Day, R. C. Tolman, W. R. Whitney.

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[1] Every 5 years the committee recommends the person whom they consider most deserving of the medal, and upon approval by the Academy the name of the nominee is forwarded to the trustees of Columbia University, who administer the Barnard Medal Fund.

BARNARD MEDAL AWARDS

Rayleigh, Lord, 1895
Röntgen, Wilhelm Conrad, 1900
Becquerel, Henri, 1905
Rutherford, Baron Ernest, 1909
Bragg, Sir William H., and Bragg, W. L., 1914
Einstein, Albert, 1921
Bohr, Neils, 1925
Heisenberg, Werner, 1930
Hubble, Edwin, 1935
Joliot, F., and Curie, Irene, 1940

Billings Fund

[$25,258.39]

For partial support of the Proceedings or for such other purpose as the Academy may select

John J. Carty Fund

[$25,000]

Medal and monetary award, not oftener than once in every 2 years, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy

Committee.—Isaiah Bowman, chairman (1948); Roger Adams (1947); Vannevar Bush (1950); Harvey Fletcher (1951); J. B. Murphy (1949).

Carty, John J., 1932
Wilson, Edmund Beecher, 1936
Bragg, Sir William, 1939
Conklin, Edwin Grant, 1943
Durand, William Frederick, 1945

Cyrus B. Comstock Fund

[$15,000]

Prize awarded every 5 years for most important discovery or investigation in electricity, magnetism, and radiant energy, or to aid worthy investigations in those subjects

Committee.—Vannevar Bush, chairman (1949); J. W. Beams (1951), L. A. DuBridge (1950), Gano Dunn (1947), A. L. Loomis (1948).

COMSTOCK PRIZE AWARDS

Millikan, Robert A., 1913
Barnett, Samuel J., 1918
Duane, William, 1923
Davisson, C. J., 1928
Bridgman, Percy W., 1933
Lawrence, Ernest O., 1938
Kerst, Donald W., 1943

Henry Draper Fund

[$10,000]

Draper medal and investigations in astronomical physics

Committee.—Joel Stebbins, chairman (1948); Walter S. Adams (1950), John A. Fleming (1951), Arthur S. King (1947), Otto Struve (1949).

HENRY DRAPER MEDAL AWARDS

Langley, Samuel P., 1886
Pickering, E. C., 1888
Rowland, H. A., 1890
Vogel, H. K., 1893
Keeler, J. E., 1899
Huggins, Sir William, 1901
Hale, George E., 1904
Campbell, W. W., 1906
Abbot, C. G., 1910
Deslandres, H., 1913
Stebbins, Joel, 1915
Michelson, A. A., 1916
Adams, W. S., 1918
Fabry, Charles, 1919
Fowler, Alfred, 1920
Zeeman, Pieter, 1921
Russell, Henry Norris, 1922
Eddington, Sir Arthur Stanley, 1924
Shapley, Harlow, 1926
Wright, William Hammond, 1928
Cannon, Annie Jump, 1931
Slipher, V. M., 1932
Plaskett, John Stanley, 1934
Mees, C. E. Kenneth, 1936
Wood, Robert Williams, 1940
Bowen, Ira Sprague, 1942
Merrill, Paul W., 1945

Daniel Giraud Elliot Fund

[$8,000]

Medal and honorarium for most meritorious work in zoology or paleontology published each year

Committee.—W. K. Gregory, chairman; S. R. Detwiler (1947), A. H. Sturtevant, Alexander Wetmore.

DANIEL GIRAUD ELLIOT MEDAL AWARDS

Chapman, F. M., 1917
Beebe, William, 1918
Ridgway, Robert, 1919
Abel, Othenio, 1920
Dean, Bashford, 1921
Wheeler, William Morton, 1922
Canu, Ferdinand, 1923
Breuil, Henri, 1924
Wilson, Edmund B., 1925
Stensiö, Erik A.: Son, 1927
Seton, Ernest Thompson, 1928
Osborn, Henry Fairfield, 1929
Coghill, George Ellett, 1930
Black, Davidson, 1931
Chapin, James P., 1932
Lull, Richard Swann, 1933
Painter, Theophilus Shickel, 1934
Colbert, Edwin H., 1935
Murphy, Robert Cushman, 1936
Parker, George Howard, 1937
Irwin, Malcolm Robert, 1938
Northrop, John Howard, 1939
Scott, William Berryman, 1940
Dobzhansky, Theodosius, 1941
Thompson, Sir D'Arcy Wentworth, 1942
Lashley, Karl Spencer, 1943

Wolcott Gibbs Fund

[$5,545.50]

Chemical research

Board of directors.—G. P. Baxter, chairman; Roger Adams, C. A. Kraus.

Benjamin Apthorp Gould Fund

[$20,000]

Researches in astronomy

Board of directors.—F. R. Moulton, chairman; Walter S. Adams, Joel Stebbins.

Marcellus Hartley Fund

[$1,200]

Medal for eminence in the application of science to the public welfare

Committee.—A. R. Dochez, chairman (1947); J. B. Conant (1949), E. G. Conklin (1948), Zay Jeffries (1949), Harlow Shapley (1948), John T. Tate (1947).

PUBLIC WELFARE MEDAL AWARDS

(In memory of Marcellus Hartley)

Goethals, G. W., 1914
Gorgas, W. C., 1914
Abbe, Cleveland, 1916
Pinchot, Gifford, 1916
Stratton, S. W., 1917
Hoover, Herbert, 1920
Stiles, C. W., 1921
Chapin, Charles V., 1928
Mather, Stephen Tyng, 1930
Rose, Wickliffe, 1931
Park, William Hallock, 1932
Fairchild, David, 1933
Vollmer, August, 1934
Russell, F. F., 1935
Cumming, Hugh S., 1935
Whitney, Willis Rodney, 1937
Hoover, John Edgar, 1939
Rockefeller, John Davidson, Jr., 1943
Bush, Vannevar, 1945

Joseph Henry Fund

[$47,163.50]

To assist meritorious investigators, expecially in the direction of original research

Committee.—D. W. Bronk, chairman (1948); Raymond T. Birge (1949), George W. Corner (1947), Joel H. Hildebrand (1951), Walter S. Hunter (1950).

Marsh Fund

[$20,000]

Original research in the natural sciences

Committee.—G. G. Simpson, chairman (1947); A. F. Buddington (1951), Warren J. Mead (1949), Theophilus S. Painter (1948), Edmund W. Sinnott (1950).

Murray Fund

[$10,000]

Agassiz medal for original contributions in the science of oceanography

Committee.—T. Wayland Vaughan, chairman (1948); Henry B. Bigelow (1947), H. U. Sverdrup (1949).

AGASSIZ MEDAL AWARDS

Hjort, Johan, 1913
Albert I, Prince of Monaco, 1918
Sigsbee, C. D., 1920
Pettersson, Otto Sven, 1924
Bjerknes, Vilhelm, 1926
Weber, Max, 1927
Ekman, Vagn Walfrid, 1928
Gardiner, J. Stanley, 1929
Schmidt, Johannes, 1930
Bigelow, Henry Bryant, 1931
Defant, Albert, 1932
Helland-Hansen, Björn, 1933
Gran, Haakon Hasberg, 1934
Vaughan, T. Wayland, 1935
Knudsen, Martin, 1936
Allen, Edgar Johnson, 1937
Sverdrup, Harald Ulrik, 1938
Lillie, Frank Rattray, 1939
Iselin, Columbus, II, 1942

George True Nealley Fund

[$19,555.55]

For the general purposes of the Academy

J. Lawrence Smith Fund

[$10,000]

J. Lawrence Smith medal and investigations of meteoric bodies

Committee.—S. A. Mitchell, chairman (1947); L. H. Adams (1949), Chester R. Longwell (1948), V. M. Slipher (1950); R. J. Trumpler (1951).

J. LAWRENCE SMITH MEDAL AWARDS

Newton, H. A., 1888
Merrill, George P., 1922
Perry, Stuart Hoffman, 1945

Mary Clark Thompson Fund

[$10,000]

Medal for most important services to geology and paleontology

Committee.—Eliot Blackwelder, chairman (1947); Carl O. Dunbar (1949), W. C. Mendenhall (1948).

MARY CLARK THOMPSON MEDAL AWARDS

Walcott, Charles Doolittle, 1921
Margerie, Emmanuel de, 1923
Clarke, John Mason, 1925
Smith, James Perrin, 1928
Scott, William Berryman, 1930
Ulrich, Edward Oscar, 1930
White, David, 1931
Bather, Francis Arthur, 1932
Schuchert, Charles, 1934
Grabau, Amadeus William, 1936
Watson, David Meredith Seares, 1941
Woodward, Sir Arthur Smith, 1942
Berry, Edward Wilber, 1942
Simpson, George Gaylord, 1943
Arkell, William Joscelyn, 1944
Vaughan, T. Wayland, 1945

Charles Doolittle Walcott Fund

[$5,000]

For stimulation of research in pre-Cambrian or Cambrian life by award of a medal and honorarium every 5 years

Board of trustees.—Carl O. Dunbar, temporary chairman; Alexander Wetmore (representing the Smithsonian Institution), Pierre Pruvost (representing the Institut de France), O. T. Jones (representing the Royal Society of London), W. H. Bucher.

CHARLES DOOLITTLE WALCOTT MEDAL AWARDS

White, David, 1934
Westergaard, A. H., 1939

James Craig Watson Fund

[$25,000]

Watson medal and the promotion of astronomical research

Trustees—A. O. Leuschner, chairman; F. E. Ross, F. H. Seares.

JAMES CRAIG WATSON MEDAL AWARDS

Gould, B. A., 1887
Schoenfeld, Ed., 1889
Auwers, Arthur, 1891
Chandler, S. C., 1894
Gill, Sir David, 1899
Kapteyn, J. C., 1913
Leuschner, A. O., 1915
Charlier, C. V. L., 1924
de Sitter, Willem, 1929
Brown, Ernest William, 1936

Carnegie Endowment Fund

[$3,500,000]

For the purposes of the National Academy of Sciences and National Research Council

National Science Fund

Board of directors

EX OFFICIO

The president of the Academy, Frank B. Jewett
The treasurer of the Academy, Jerome C. Hunsaker
The chairman of the Research Council. Detlev W. Bronk
The president of the American Association for the Advancement of Science, James B. Conant

NON-ACADEMY MEMBERS

Winthrop W. Aldrich
James F. Bell
John W. Davis
Homer L. Ferguson
Walter S. Gifford
Carlton J. H. Hayes
Archibald MacLeish
Harvey S. Mudd
Elihu Root, Jr.
Tom K. Smith
Lewis L. Strauss
Harold H. Swift

Academy members

Roger Adams
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Albert F. Blakeslee
Isaiah Bowman
Arthur H. Compton
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Edwin G. Conklin
Luther P. Eisenhart
Herbert S. Gasser
Herbert Hoover
Ernest O. Lawrence
Frank R. Lillie
Robert A. Millikan
Alfred N. Richards
William J. Robbins
Harlow Shapley
George H. Whipple

Chairman of the board: Harlow Shapley; vice chairman, Winthrop W. Aldrich.

Executive secretary of the National Science Fund: Howland H. Sargeant.

Office of the National Science Fund: 2101 Constitution Avenue, Washington 25, D. C.

6. MEMBERS OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1946

	Elected
Abbot, Charles Greeley, 4604 Haring Lane, Bethesda, Md	1915
Adams, Comfort Avery, the Edward G. Budd Manufacturing Co., Philadelphia 32, Pa	1930
Adams, Leason Heberling, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton St., Washington 8, D. C	1943
Adams, Roger, University of Illinois, Urbana, Ill	1929
Adams, Walter Sydney, Mount Wilson Observatory, Pasadena 4, Calif	1917
Addis, Thomas, Stanford University Medical School, 2398 Sacramento St., San Francisco 15, Calif	1944
Adkins, Homer, 369 Chemistry Bldg., University of Wisconsin, Madison 6, Wis	1942
Aitken, Robert Grant, 1109 Spruce St., Berkeley 7, Calif	1918
Albert, Abraham Adrian, Department of Mathematics, University of Chicago, Chicago 37, Ill	1943
Alexander, James Waddell, 29 Cleveland Lane, Princeton, N. J	1930
Allen, Charles Elmer, Room 103, Biology Bldg., University of Wisconsin, Madison 6, Wis	1924
Allen, Eugene Thomas, The Irvington, 135 Pleasant St., Arlington 74, Mass	1930
Allison, Samuel King, Institute for Nuclear Studies, University of Chicago, Chicago 37, Ill	1946
Anderson, Carl David, California Institute of Technology, Pasadena 4, Calif	1938
Anderson, John August, Post Office Box 332, Pasadena 17, Calif	1928
Anderson, Rudolph John, Division of Chemistry, Yale University, New Haven, Conn	1946
Angell, James Rowland, 155 Blake Rd., New Haven 5, Conn	1920
Armstrong, Charles, National Institute of Health, Bethesda 14, Md	1944
Avery, Oswald Theodore, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1933
Babcock, Ernest Brown, Department of Genetics, University of California, Berkeley 4, Calif	1946
Babcock, Harold Delos, Mount Wilson Observatory, Pasadena 4, Calif	1933
Bachmann, Werner Emmanuel, University of Michigan, Ann Arbor, Mich	1941
Bailey, Irving Widmer, Biological Laboratories, Harvard University, Cambridge 38, Mass	1929
Bailey, Liberty Hyde, Bailey Hortorium, Ithaca, N. Y	1917
Bainbridge, Kenneth Tompkins, Department of Physics, Harvard University, Cambridge 38, Mass	1946
Bancroft, Wilder Dwight, 7 East Avenue, Ithaca, N. Y	1920
Bard, Philip, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1944
Baxter, Gregory Paul, T. Jefferson Coolidge, Jr., Memorial Laboratory, Cambridge 38, Mass	1916
Beadle, George Wells, Division of Biology, California Institute of Technology, Pasadena 4, Calif	1944
Beams, Jesse Wakefield, Rouss Physical Laboratory, University of Virginia, Charlottesville, Va	1943
Bell, Eric Temple, California Institute of Technology, Pasadena 4, Calif	1927
Berkey, Charles Peter, Department of Geology, Columbia University, New York 27, N. Y	1927

6. Members of the National Academy of Sciences—Continued

	Elected
Bethe, Hans Albrecht, Cornell University, Ithaca, N. Y	1944
Bigelow, Henry Bryant, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass	1931
Birge, Raymond Thayer, University of California, Berkeley 4, Calif	1932
Blackwelder, Eliot, P. O. Box N, Stanford University, Calif	1936
Blakeslee, Albert Francis, Department of Botany, Smith College, Northampton, Mass	1929
Blalock, Alfred, Johns Hopkins Hospital, Baltimore 5, Md	1945
Bliss, Gilbert Ames, Flossmoor, Ill	1916
Bogert, Marston Taylor, 566 Chandler Laboratories, Columbia University, New York 27, N. Y	1916
Bolton, Elmer K., Department of Chemistry, E. I. du Pont de Nemours & Co., Wilmington, Del	1946
Boring, Edwin Garrigues, Emerson Hall, Harvard University, Cambridge 38, Mass	1932
Bowen, Ira Sprague, Mount Wilson Observatory, Pasadena 4, Calif	1936
Bowen, Norman Levi, Rosenwald Hall, University of Chicago, Chicago 37, Ill	1935
Bowman, Isaiah, Johns Hopkins University, Baltimore 18, Md	1930
Bradley, Wilmot Hyde, U. S. Geological Survey, Washington 25, D. C	1946
Breit, Gregory, Sloane Physics Laboratory, Yale University, New Haven, Conn	1939
Bridgman, Percy Williams, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1918
Briggs, Lyman James, National Bureau of Standards, Washington 25, D. C	1942
Bronk, Detlev Wulf, Johnson Research Foundation, University of Pennsylvania, Philadelphia 4, Pa.; National Research Council, 2101 Constitution Ave., Washington 25, D. C	1939
Bucher, Walter Hermann, Department of Geology, Columbia University, New York 27, N. Y	1938
Buckley, Oliver Ellsworth, Bell Telephone Laboratories, 463 West St., New York 14, N.Y	1937
Buddington, Arthur Francis, Princeton University, Princeton, N. J	1943
Bush, Vannevar, Carnegie Institution of Washington, Washington 5, D. C	1934
Byerly, Perry, Department of Seismology, University of California, Berkeley 4, Calif	1946
Campbell, Douglas Houghton, Stanford University, Stanford University, Calif	1910
Cannon, Paul Robert, Department of Pathology, University of Chicago, Chicago 37, Ill	1946
Carlson, Anton Julius, University of Chicago, Chicago 37, Ill	1920
Carmichael, Leonard, Tufts College, Medford 55, Mass	1943
Castle, William Bosworth, Boston City Hospital, Boston 18, Mass	1939
Castle, William Ernest, 421 Spruce St., Berkeley 8, Calif	1915
Chamberlin, Rollin Thomas, University of Chicago, Chicago 37, Ill	1940
Chandler William Henry, College of Agriculture, University of California, 405 Hilgard Ave., Los Angeles 24, Calif	1943
Child, Charles Manning, Jordan Hall, Stanford University, Stanford University, Calif	1935
Clark, William Mansfield, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1928
Clarke, Hans Thacher, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1942
Cleland, Ralph Erskine, Indiana University, Bloomington, Ind	1942
Coble, Arthur Byron, University of Illinois, Urbana, Ill	1924
Coblentz, William Weber, 2737 Macomb St. NW., Washington 8, D. C	1930
Cochrane, Edward Lull, Material Division, Navy Department, Washington 25, D. C	1945
Cohn, Edwin Joseph, Harvard Medical School, Boston 15, Mass	1943
Cole, Rufus, Mount Kisco, N. Y	1922
Compton, Arthur Holly, Washington University, St. Louis 5, Mo	1927
Compton, Karl Taylor, 111 Memorial Drive, Cambridge 39, Mass	1924
Conant, James Bryant, Harvard University, Cambridge 38, Mass	1929
Condon, Edward Uhler, National Bureau of Standards, Washington 25, D. C	1944

6. Members of the National Academy of Sciences—Continued

	Elected
Conklin, Edwin Grant, Princeton University, Princeton, N. J	1908
Coolidge, William David, Hanford Division of Research Laboratory, General Electric Co., Richland, Wash	1925
Cori, Carl Ferdinand, School of Medicine, Washington University, St. Louis 10, Mo	1940
Corner, George Washington, Department of Embryology, Carnegie Institution of Washington, Wolfe and Madison Sts., Baltimore 5, Md	1940
Cottrell, Frederick Gardner, 1557 Waverley St., Palo Alto, Calif	1939
Couch, John Nathaniel, University of North Carolina, Chapel Hill, N. C	1943
Crew, Henry, 620 Library Pl., Evanston, Ill	1909
Cross, Charles Whitman, 3901 Connecticut Ave. NW., Washington 8, D. C	1908
Curme, George Oliver, Jr., Carbide & Carbon Corp., 30 East 42d St., New York 11, N. Y	1944
Daly, Reginald Aldworth, 23 Hawthorn St., Cambridge 38, Mass	1925
Danforth, Charles Haskell, Department of Anatomy, Stanford University, Stanford University, Calif	1942
Davis, Bergen, 44 Morningside Dr., New York 25, N. Y	1929
Davisson, Clinton Joseph, 31, Campbell Rd., Short Hills, N. J	1929
Day, Arthur Louis, 9113 Old Georgetown Rd., Bethesda 14, Md	1911
Demerec, Milislav, Department of Genetics, Carnegie Institution of Washington, Cold Spring Harbor, N. Y	1946
Dempster, Arthur Jeffrey, University of Chicago, Chicago 37, Ill	1937
Detwiler, Samuel Randall, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1932
Dobzhansky, Theodosius, Department of Zoology, Columbia University, New York 27, N. Y	1943
Dochez, Alphonse Raymond, Columbia University, Presbyterian Hospital, 620 West 168th St., New York 32, N. Y	1933
Dodge, Bernard Ogilvie, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1933
Doisy, Edward Adelbert, St. Louis University School of Medicine, 1402 South Grand Blvd., St. Louis 4, Mo	1938
Douglas, Jesse, 2610 Glenwood Rd., Brooklyn 10, N. Y	1946
Dryden, Hugh Latimer, National Bureau of Standards, Washington 25, D. C	1944
DuBois, Eugene Floyd, Cornell University Medical College, 1300 York Ave., New York 21, N. Y	1933
Dubos, Rene Jules, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1941
DuBridge, Lee Alvin, California Institute of Technology, Pasadena 4, Calif	1943
Duggar, Benjamin Minge, Lederle Laboratories, Inc., Pearl River, N. Y	1927
Dunbar, Carl Owen, Peabody Museum, Yale University, New Haven, Conn	1944
Dunn, Gano, 80 Broad St., New York 4, N. Y	1919
Dunn, Leslie Clarence, Columbia University, New York 27, N. Y	1943
Durand, William Frederick, Stanford University, Stanford University, Calif	1917
du Vigneaud, Vincent, Cornell University Medical College, New York 21, N. Y	1944
Einstein, Albert, Institute for Advanced Study, Princeton, N. J	1942
Eisenhart, Luther Pfahler, 25 Alexander St., Princeton, N. J	1922
Elvehjem, Conrad Arnold, Department of Biochemistry, University of Wisconsin, Madison 6, Wis	1942
Emerson, Rollins Adams, Cornell University, Ithaca, N. Y	1927
Epstein, Paul Sophus, 1484 Oakdale St., Pasadena 4, Calif	1980
Erlanger, Joseph, Washington University School of Medicine, 4580 Scott Ave., St. Louis 10, Mo	1922
Evans, Griffith Conrad, Department of Mathematics, University of California, Berkeley 4, Calif	1933
Evans, Herbert McLean, Institute of Experimental Biology, University of California, Berkeley 4, Calif	1927
Eyring, Henry, University of Utah, Salt Lake City, Utah	1945

6. Members of the National Academy of Sciences—Continued

	Elected
Fenn, Wallace Osgood, School of Medicine and Dentistry, University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1943
Fermi, Enrico, Institute for Nuclear Studies, University of Chicago, Chicago 37, Ill	1945
Fernald, Merritt Lyndon, Gray Herbarium, Harvard University, Cambridge 38, Mass	1935
Fieser, Louis Frederick, Harvard University, Cambridge 38, Mass	1940
Fleming, John Adam, Carnegie Institution of Washington, 1530 P St. NW., Washington 5, D. C	1938
Fletcher, Harvey, Bell Telephone Laboratories, Murray Hill, N. J	1935
Foote, Paul Darwin, Gulf Research & Development Co., P. O. Drawer 2038, Pittsburgh 30, Pa	1943
Forbes, Alexander, Harland St., Milton, Mass	1936
Franck, James, University of Chicago, Department of Chemistry, Chicago 37, Ill	1944
Fred, Edwin Broun, University of Wisconsin, Madison 6, Wis	1931
Fuson, Reynold Clayton, 263 Noyes Laboratory, University of Illinois, Urbana, Ill	1944
Gamble, James Lawder, 33 Edge Hill Rd., Brookline, Mass	1945
Gasser, Herbert Spencer, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Giaque, William Francis, University of California, Berkeley 4, Calif	1936
Gilman, Henry, Department of Chemistry, Iowa State College, Ames, Iowa	1945
Gomberg, Moses,[1] University of Michigan, Ann Arbor, Mich	1914
Goodpasture, Ernest William, Vanderbilt, Nashville 4, Tenn	1937
Graham, Clarence Henry, Department of Psychology, Columbia University, New York, N. Y	1946
Graham, Evarts Ambrose, Barnes Hospital, 600 South Kingshighway, St. Louis 10, Mo	1941
Gregory, William King, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1927
Gutenberg, Beno, Seismological Laboratory, 220 North San Rafael Ave., Pasadena 2, Calif	1945
Hammett, Louis Plack, Department of Chemistry, Columbia University, New York 27, N. Y	1943
Harkins, William Draper, University of Chicago, Chicago 37, Ill	1921
Harrison, Ross Granville, Osborn Zoological Laboratory, Yale University, New Haven, Conn	1913
Hart, Edwin Bret, Biochemistry Bldg., University of Wisconsin, Madison 6, Wis	1944
Hartman, Carl Gottfried, Department of Zoology, University of Illinois, Urbana, Ill	1937
Harvey, Edmund Newton, Guyot Hall, Princeton University, Princeton, N. J	1934
Hastings, Albert Baird, Department of Biological Chemistry, Harvard University Medical School, Boston 15, Mass	1939
Hecht, Selig, Columbia University, New York 27, N. Y	1944
Heidelberger, Michael, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1942
Hektoen, Ludvig, Chicago Tumor Institute, 21 West Elm St., Chicago 10, Ill	1918
Herrick, Charles Judson, 236 Morningside Dr. SE., Grand Rapids 6, Mich	1918
Hewett, Donnel Foster, U. S. Geological Survey, Washington 25, D. C	1937
Hildebrand, Joel Henry, Gilman Hall, University of California, Berkeley 4, Calif	1929
Hoagland, Dennis Robert, Division of Plant Nutrition, University of California, Berkeley 4, Calif	1934
Hooton, Earnest Albert, Peabody Museum, Harvard University, Cambridge 38, Mass	1935
Hoover, Herbert Clark, Waldorf Astoria Towers, New York, N. Y	1922
Houston, William Vermillon, the Rice Institute, Houston, Tex	1943
Hovgaard, William, Hotel Margaret, Columbia Heights, Brooklyn 2, N. Y	1929
Hubble, Edwin Powell, Mount Wilson Observatory, Pasadena 4, Calif	1927
Hudson, Claude Silbert, National Institute of Health, Bethesda 14, Md	1927

[1] Died Feb. 12, 1947.

6. Members of the National Academy of Sciences—Continued

	Elected
Hulett, George Augustus, 44 Washington Rd., Princeton, N. J	1922
Hull, Albert Wallace, Research Laboratory, General Electric Co., Schenectady 5, N. Y	1929
Hull, Clark Leonard, Institute of Human Relations, Yale University, 333 Cedar St., New Haven, Conn	1936
Hunsaker, Jerome Clark, Massachusetts Institute of Technology, Cambridge 39, Mass	1935
Hunter, Walter Samuel, Brown University, Providence 12, R. I	1935
Ipatieff, Vladimir Nikolaevich, Universal Oil Products Co., Riverside, Ill	1939
Ives, Herbert Eugene, Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1933
Jackson, Dunham,[2] University of Minnesota, Minneapolis 14, Minn	1935
Jacobs, Merkel Henry, School of Medicine, University of Pennsylvania, Philadelphia 4, Pa	1939
Jacobs, Walter Abraham, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1932
Jeffries, Zay, General Electric Co., 1 Plastics Ave., Pittsfield, Mass	1939
Jennings, Herbert Spencer,[3] Department of Zoology, University of California, Los Angeles 24, Calif	1914
Jewett, Frank Baldwin, 140 West St., Room 2300, New York 7, N. Y	1918
Johnson, Treat Baldwin, "Bethwood," Amity Rd., Bethany, R. F. D. 1, New Haven, Conn	1919
Jones, Donald Forsha, Box 1106, Department of Genetics, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1939
Joy, Alfred Harrison, Mount Wilson Observatory, Pasadena 4, Calif	1944
Kasner, Edward, Columbia University, New York 27, N. Y	1917
Kelley, Walter Pearson, College of Agriculture, University of California, Berkeley 4, Calif	1943
Kelly, Mervin J., Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1945
Kemble, Edwin Crawford, the Physics Laboratories, Harvard University, Cambridge 38, Mass	1931
Kettering, Charles Franklin, General Motors Corp., Detroit 2, Mich	1928
Keyes, Frederick George, Massachusetts Institute of Technology, Cambridge 39, Mass	1930
Kharasch, Morris Selig, department of chemistry, University of Chicago, Chicago 37, Ill	1946
Kidder, Alfred Vincent, 10 Frisbie Pl., Cambridge 38 Mass	1936
King, Arthur Scott, Mount Wilson Observatory, Pasadena 4, Calif	1941
Kirkwood, John Gamble, Baker Laboratory, Cornell University, Ithaca, N. Y	1942
Kistiakowsky, George Bogdan, Department of Chemistry, 12 Oxford St., Harvard University, Cambridge 38, Mass	1939
Knoph, Adolph, Yale University, New Haven, Conn	1931
Kofoid, Charles Atwood, University of California, Berkeley 4, Calif	1922
Kraus, Charles August, Brown University, Providence 12, R. I	1925
Kroeber, Alfred L., University of California, Berkeley 4, Calif	1928
Kunkel, Louis Otto, Rockefeller Institute for Medical Research, Princeton, N. J	1932
Lamb, Arthur Becket, Chemical Laboratory, Harvard University, Cambridge 38, Mass	1924
LaMer, Victor Kuhn, Department of Chemistry, Columbia University, New York 27, N. Y	1945
Langmuir, Irving, General Electric Co., Schenectady 5, N. Y	1918
Larsen, Esper S., Jr., Geological Museum, Oxford St., Cambridge 38, Mass	1944
Lashley, Karl Spencer, Yerkes Laboratories of Primate Biology, Orange Park, Fla	1930
Latimer, Wendell Mitchell, University of California, Berkeley 4, Calif	1940
Lauritsen, Charles Christian, California Institute of Technology, Pasadena, 4, Calif	1941
Lawrence, Ernest Orlando, Radiation Laboratory, University of California, Berkeley 4, Calif	1934
Lawson, Andrew Cowper, University of California, Berkeley 4, Calif	1924

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[2] Died Nov. 6, 1946.

[3] Died Apr. 14, 1947.

6. Members of the National Academy of Sciences—Continued

	Elected
Lefschetz, Solomon, 129 Broadmead St., Princeton, N. J	1925
Leith, Charles Kenneth, University of Wisconsin, Madison 6, Wis	1920
Leuschner, Armin Otto, 1816 Scenic Ave., Berkeley 4, Calif	1913
Lewis, George W., 1500 New Hampshire Ave. NW., Washington 25, D. C.	1945
Lewis, Warren Harmon, the Wistar Institute of Anatomy and Biology, Philadelphia 4, Pa	1936
Lewis, Warren Kendall, Massachusetts Institute of Technology, Cambridge 39, Mass	1938
Lillie, Frank Rattray, 5801 Kenwood Ave., Chicago 37, Ill	1915
Lind, Samuel Colville, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1930
Link, Karl Paul, Department of Biochemistry, Agricultural Experiment Station, University of Wisconsin, Madison, Wis	1946
Linton, Ralph, Department of Anthropology, Columbia University, New York 27, N. Y	1945
Little, Clarence Cook, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine	1945
Loeb, Leo, 40 Crestwood Dr., St. Louis 5, Mo	1937
Loeb, Robert Frederick, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1946
Long, Esmond Ray, Henry Phipps Institute, 7th and Lombard Sts., Philadelphia, Pa	1946
Longcope, Warfield Theobald, Cornhill Farm, Lee, Mass	1943
Longwell, Chester Ray, Kirtland Hall, Yale University, New Haven, Conn	1935
Loomis, Alfred Lee, Loomis Laboratory, the Tower, Tuxedo Park, N. Y	1941
Lowie, Robert Harry, University of California, Berkeley 4, Calif	1931
Lyman, Theodore, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1917
McClintock, Barbara, Carnegie Institution, Cold Spring Harbor, Long Island, N. Y	1944
McCollum, Elmer Verner, Gilman Hall, Johns Hopkins University, Baltimore 18, Md	1920
MacInnes, Duncan Arthur, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1937
MacNider, William deBerniere, University of North Carolina, Chapel Hill, N. C	1938
Macelwane, James Bernard, S. J., 221 North Grand Blvd., St. Louis 3, Mo	1944
Mangelsdorf, Paul Christoph, Botanical Museum, Harvard University, Cambridge 38, Mass	1945
Marshall, Eli Kennerly, Jr., School of Medicine, Johns Hopkins University, 710 North Washington St., Baltimore, 5, Md	1943
Marvel, Carl Shipp, Department of Chemistry, University of Illinois, Urbana, Ill	1938
Mason, Max, California Institute of Technology, Pasadena 4, Calif	1923
Mayer, Joseph Edward, Department of Chemistry, University of Chicago, Chicago 37, Ill	1946
Maynard, Leonard Amby, School of Nutrition, Cornell University, Ithaca, N. Y	1944
Mead, Warren Judson, Massachusetts Institute of Technology, Cambridge 39, Mass	1939
Mendenhall, Walter Curran, 9 East Lenox St., Chevy Chase 15, Md	1932
Merica, Paul Dyer, 67 Wall St., New York 5, N. Y	1942
Merrill, Elmer Drew, Arnold Arboretum, Jamaica Plain, Mass	1923
Merrill, Paul Willard, Mount Wilson Observatory, Pasadena 4, Calif	1929
Merritt, Ernest George, 1 Grove Pl., Ithaca, N. Y	1914
Meyer, Karl Friederich, George Williams Hooper Foundation, University of California Medical Center, San Francisco 22, Calif	1940
Michaelis, Leonor, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1943
Miles, Walter Richard, Yale University School of Medicine, 333 Cedar St., New Haven, Conn	1933
Miller, George Abram, 1203 West Illinois St., Urbana, Ill	1921
Millikan, Robert Andrews, California Institute of Technology, Pasadena 4, Calif	1915

6. Members of the National Academy of Sciences—Continued

	Elected
Minot, George Richards, Thorndike Memorial Laboratory, Boston City Hospital, Boston 18, Mass	1937
Mitchell, Samuel Alfred, Leander McCormick Observatory, University Station, Charlottesville, Va	1933
Moore, Carl Richard, University of Chicago, Chicago 37, Ill	1944
Moore, Joseph Haines, Lick Observatory, Mount Hamilton, Calif	1931
Moore, Robert Lee, University of Texas, Austin 12, Tex	1931
Morse, Harold Marston, Institute for Advanced Study, Princeton, N. J	1932
Moulton, Forest Ray, 1515 Massachusetts Ave. NW., Washington 5, D. C	1910
Mueller, John Howard, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1945
Muller, Hermann Joseph, Department of Zoology, Indiana University, Bloomington, Ind	1931
Mulliken, Robert Sanderson, University of Chicago, Chicago 37, Ill	1936
Murnaghan, Francis Dominic, Johns Hopkins University, Baltimore 18, Md	1942
Murphy, James Bumgardner, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1940
Nicholson, Seth Barnes, Mount Wilson Observatory, Pasadena 4, Calif	1937
Northrop, John Howard, Rockefeller Institute for Medical Research, Princeton, N. J	1934
Novy, Frederick George, 721 Forest Ave., Ann Arbor, Mich	1924
Noyes, William Albert, Jr., Department of Chemistry, University of Rochester, Rochester 3, N. Y	1943
Opie, Eugene Lindsay, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1923
Oppenheimer, J. Robert, University of California, Berkeley 4, Calif	1941
Osterhout, Winthrop John Vanleuven, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1919
Painter, Theophilus Shickel, University of Texas, Austin 12, Tex	1938
Palache, Charles, Harvard University, Cambridge 38, Mass	1934
Parker, George Howard, Harvard Biological Laboratories, Divinity Ave., Cambridge 38, Mass	1913
Patterson, John Thomas, University of Texas, Austin 12, Tex	1941
Paul John Rodman, 789 Howard Ave., New Haven 4, Conn	1945
Pauling, Linus, California Institute of Technology, Pasadena 4, Calif	1933
Pierce, George Washington, Cruft Laboratory, Harvard University, Cambridge 38, Mass	1920
Piggot, Charles Snowden, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C	1946
Pillsbury, Walter Bowers, University of Michigan, Ann Arbor, Mich	1925
Rabi, Isidor Isaac, Department of Physics, Columbia University, New York 27, N. Y	1940
Reeside, John Bernard, Jr., Box 177, Hyattsville, Md	1945
Reichelderfer, Francis Wilton, Room 310, U. S. Weather Bureau, Washington 25, D. C	1945
Rhoades, Marcus Morton, Department of Botany, Columbia University, New York 27, N. Y	1946
Richards, Alfred Newton, 291 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Pa	1927
Riddle, Oscar, Route 4, Plant City, Fla	1939
Ritt, Joseph Fels, Columbia University, New York 27, N. Y	1933
Rivers, Thomas Milton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Robbins, William Jacob, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1940
Robertson, Oswald Hope, Department of Medicine, University of Chicago, Chicago 37, Ill	1943
Rodebush, Worth Huff, University of Illinois, Urbana, Ill	1938
Romer, Alfred Sherwood, Museum of Comparative Zoology, Oxford St., Cambridge 38, Mass	1944
Rose, William Cumming, University of Illinois, Urbana, Ill	1936
Ross, Frank Elmore, Mount Wilson Observatory, Pasadena 4, Calif	1930
Rossby, Carl-Gustaf Arvid, Institute of Meteorology, University of Chicago, Chicago 37, Ill	1943

6. Members of the National Academy of Sciences—Continued

	Elected
Rous, Francis Peyton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1927
Rubey, William Walden, U. S. Geological Survey, Washington 25, D. C	1945
Ruedemann, Rudolf, 161 Dana Ave., Albany 3, N. Y	1928
Russell, Henry Norris, Princeton University, Princeton, N. J	1918
Sabin, Florence Rena, 1333 East 10th Ave., Denver 3, Colo	1925
Saunders, Frederick Albert, South Hadley, Mass	1925
Sax, Karl, Harvard University, Cambridge 38, Mass	1941
Scatchard, George, Department of Chemistry, Massachusetts Institute of Technology, Cambridge 39, Mass	1946
Schultz, Adolph Hans, Johns Hopkins Medical School, Baltimore 5, Md	1939
Scott, William Berryman,[4] Princeton University, Princeton, N. J	1906
Seares, Frederick Hanley, Mount Wilson Observatory, Pasadena 4, Calif	1919
Seashore, Carl Emil, State University of Iowa, Iowa City, Iowa	1922
Shaffer, Philip Anderson, Washington University Medical School, St. Louis 10, Mo	1928
Shapley, Harlow, Harvard College Observatory, Cambridge 38, Mass	1924
Sherman, Henry Clapp, Columbia University, New York 27, N. Y	1933
Shope, Richard Edwin, Box 323, Kingston, N. J	1940
Simpson, George Gaylord, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1941
Sinnott, Edmund Ware, Osborn Botanical Laboratory, Yale University, New Haven, Conn	1936
Slater, John Clarke, Massachusetts Institute of Technology, Cambridge 39, Mass	1932
Slepian, Joseph, Westinghouse Electric Corp., East Pittsburgh, Pa	1941
Slichter, Louis Byrne, 636 Francis St., Madison, Wis	1944
Slipher, Vesto Melvin, Lowell Observatory, Flagstaff, Ariz	1921
Small, Lyndon Frederick, National Institute of Health, Bethesda 14, Md	1941
Smith, Homer William, 477 First Ave., New York 16, N. Y	1945
Smith, Lee Irvin, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1944
Smith, Philip Edward, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1939
Sonneborn, Tracy Morton, Department of Zoology, Indiana University, Bloomington, Ind	1946
Spier, Leslie, P. O. Box 880, Santa Cruz, Calif	1946
Stadie, William Christopher, 821 Maloney Clinic, 36th and Spruce Sts, Philadelphia 4, Pa	1945
Stadler, Lewis John, University of Missouri, Columbia, Mo	1938
Stakman, Elvin Charles, University Farm, St. Paul 8, Minn	1934
Stanley, Wendell Meredith, Rockefeller Institute for Medical Research, Princeton, N. J	1941
Stebbins, Joel, Washburn Observatory, Madison 6, Wis	1920
Stern, Otto, 759 Cragmont Ave., Berkeley, Calif	1945
Stevens, Stanley Smith, Department of Psychology, Harvard University, Cambridge 38, Mass	1946
Stewart, George Walter, State University of Iowa, Iowa City, Iowa	1938
Stone, Calvin Perry, Stanford University, Stanford University, Calif	1943
Stone, Marshall Harvey, 313 Eckhart Hall, University of Chicago, Chicago 37, Ill	1938
Streeter, George Linus, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1931
Struve, Otto, Yerkes Observatory, Williams Bay, Wis	1937
Sturtevant, Alfred Henry, California Institute of Technology, Pasadena 4, Calif	1930
Suits, Chauncey Guy, Research Laboratory, General Electric Co., Schenectady, N. Y	1946
Sverdrup, Harald Ulrik, Scripps Institution of Oceanography, La Jolla, Calif	1945
Swanton, John Reed, 22 George St., Newton 58, Mass	1932
Taliaferro, William Hay, University of Chicago, Chicago 37, Ill	1940
Tate, John Torrence, University of Minnesota, Minneapolis 14, Minn	1942
Terman, Frederick Emmons, School of Engineering, Stanford University, Stanford University, Calif	1946

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[4] Died Mar. 29, 1947.

6. Members of the National Academy of Sciences—Continued

	Elected
Terman, Lewis Madison, 761 Dolores, Stanford University, Calif	1928
Thom, Charles, 207 Grant St., Port Jefferson, N. Y	1937
Thomas, Tracy Yerkes, Swain Hall, Indiana University, Bloomington, Ind.	1941
Thorndike, Edward Lee, Teachers College, Columbia University, New York 27, N. Y	1917
Thurstone, Louis Leon, University of Chicago, Chicago 37, Ill	1938
Timoshenko, Stephen Prokop, Room 262, Engineering Bldg., Stanford, University, Calif	1940
Tolman, Edward Chace, Department of Psychology, University of California, Berkeley 4, Calif	1937
Tolman, Richard Chace, California Institute of Technology, Pasadena 4, Calif	1923
Tozzer, Alfred Marston, Peabody Museum, Harvard University, Cambridge 38, Mass	1942
Trumpler, Robert Julius, Berkeley Astronomical Department, University of California, Berkeley 4, Calif	1932
Tuve, Merle Antony, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd., Washington 15, D. C	1946
Tyzzer, Ernest Edward, Harvard University Medical School, Boston 15, Mass	1942
Urey, Harold Clayton, P. O. Box 5207, Chicago 80, Ill	1935
Vandiver, Harry Shultz, University of Texas, Austin 12, Tex	1934
Van Niel, Cornelis Bernardus, Hopkins Marine Station of Stanford University, Pacific Grove, Calif	1945
Van Slyke, Donald Dexter, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1921
Van Vleck, John Hasbrouck, Harvard University, Cambridge 38, Mass	1935
Vaughan, Thomas Wayland, 3333 P St. NW., Washington 7, D. C	1921
Veblen, Oswald, Institute for Advanced Study, Princeton, N. J	1919
Vickery, Hubert Bradford, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1943
von Karmann, Theodore, California Institute of Technology, Pasadena 4, Calif	1938
Von Neuman, John, Institute for Advanced Study, Princeton, N. J	1937
Waksman, Selman, Abraham, Agricultural Experiment Station, New Brunswick, N. J	1942
Walker, John Charles, 206 Horticulture Bldg., University of Wisconsin, Madison 6, Wis	1945
Walsh, Joseph Leonard, Harvard University, Cambridge 38, Mass	1936
Webster, David Locke, Physics Department, Room 385, Stanford University, Stanford University, Calif	1923
Werkman, Chester Hamlin, Department of Bacteriology, Iowa State College, Ames, Iowa	1946
Wetmore, Alexander, Smithsonian Institution, Washington 25, D. C	1945
Wever, Ernest Glen, Princeton University, Princeton, N. J	1940
Weyl, Claus Hugo Hermann, Institute for Advanced Study, Princeton, N. J	1940
Whipple, George Hoyt, School of Medicine of the University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1929
Whitehead, John Boswell, Johns Hopkins University, Baltimore 18, Md	1932
Whitmore, Frank Clifford, School of Chemistry and Physics, Pennsylvania State College, State College, Pa	1946
Whitney, Hassler, Sudbury Road, Weston 93, Mass	1945
Whitney, Willis Rodney, General Electric Co., Schenectady 5, N. Y	1917
Wigner, Eugene Paul, 163 Outer Dr., Oak Ridge, Tenn	1945
Williams, Robert R., 297 Summit Ave., Summit, N. J	1945
Williams, Roger John, Biochemical Institute, University of Texas, Austin, Tex	1946
Willier, Benjamin Harrison, Department of Biology, Johns Hopkins University, Baltimore 18, Md	1945
Willis, Bailey, Box 1365, Stanford University, Calif	1920
Wilson, Edwin Bidwell, Harvard School of Public Health, 695 Huntington Ave., Boston 15, Mass	1919
Wislocki, George Bernays, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1941

6. Members of the National Academy of Sciences—Continued

	Elected
Wissler, Clark, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y.	1929
Wolbach, Simeon Burt, Harvard University Medical School, 25 Shattuck St., Boston 15, Mass.	1938
Wood, Robert Williams, Johns Hopkins University, Baltimore 18, Md.	1912
Woodring, Wendell Phillips, U. S. Geological Survey, Washington 25, D. C.	1946
Woodruff, Lorande Loss, Yale University, New Haven, Conn.	1924
Woodworth, Robert Sessions, Columbia University, New York 27, N. Y.	1921
Wright, Frederick Eugene, 2134 Wyoming Ave. NW., Washington 8, D. C.	1923
Wright, Orville, 15 North Broadway, Dayton 7, Ohio	1936
Wright, Sewall Green, Department of Zoology, University of Chicago, Chicago 37, Ill.	1934
Wright, William Hammond, 60 North Keeble Ave., San Jose 11, Calif.	1922
Yerkes, Robert Mearns, Yale School of Medicine, 333 Cedar St., New Haven, Conn.	1923
Yost, Don Merlin Lee, California Institute of Technology, Pasadena 4, Calif.	1944
Zariski, Oscar, Department of Mathematics, University of Illinois, Urbana, Ill.	1944
Zworykin, Vladimir Kosma, RCA Laboratories, Princeton, N. J.	1945

MEMBERS EMERITI

Benedict, Francis Gano, Machiasport, Maine	1914
Dewey, John, 1158 Fifth Ave., New York 29, N. Y.	1910
Dickson, Leonard Eugene, 905 South Third St., Waco, Tex.	1913
Howard, Leland Ossian, Bureau of Entomology, U. S. Department of Agriculture, Washington 25, D. C.	1916
Hunt, Reid, 382 Commonwealth Ave., Boston, Mass.	1919
Mark, Edward Laurens,[5] 109 Irving St., Cambridge 38, Mass.	1903
Stratton, George Malcolm, University of California, Berkeley 4, Calif.	1928

FOREIGN ASSOCIATES OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1946

	Elected
Adrian, Edgar Douglas, Trinity College, Cambridge, England	1941
Bailey, Sir Edward, 19 Greenhill Gardens, Edinburgh 10, Scotland	1944
Barcroft, Sir Joseph,[6] Unit of Animal Physiology, Department of Physiology, the University, Cambridge, England	1939
Bjerknes, V. F. K., University, Oslo, Norway	1934
Bohr, Niels, University of Copenhagen, Copenhagen, Denmark	1925
Bordet, Jules, Pasteur Institute, rue du Remorqueur, 28, Brussels, Belgium	1935
Bower, Frederick Orpen, the Old Deanery Hotel, Ripon, Yorks, England	1929
Bragg, Sir (William) Lawrence, the University, Cambridge, England	1945
Caso, Alfonso, Instituto Nacional de Antropologia e Historia, Zacatecas 218, Mexico, D. F.	1943
Chapman, Sydney, Queens College, Oxford, England	1946
Dale, Sir Henry Hallett, 54 Campden Hill Court, Kensington, London, W. 8, England	1940
Debye, Peter, Baker Laboratory, Cornell University, Ithaca, N. Y. (U. S. A.)	1931
Deslandres, Henri, 5 rue de Teheran, Paris 8, France	1913
Einstein, Albert,[7] Institute for Advanced Study, Princeton, N. J. (U. S. A.)	1922
Hadamard, Jacques, 12 rue Emile Faguet, Paris XIV, France	1926
Hardy, Godfrey Harold, Trinity College, Cambridge, England	1927
Hill, Archibald Vivian, 16 Bishopswood Road, Highgate, London, N. 6, England	1941
Hill, James Peter, Kanimbla, Dollis Avenue, London, N. 3, England	1940
Hopkins, Sir Frederick Gowland, Saxmeadham, 71 Grange Road, Cambridge, England	1924

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[5] Died Dec. 16, 1946.

[6] Died Mar. 21, 1947.

[7] Became a naturalized American citizen in 1941; elected to membership in the Academy in 1942.

6. Members of the National Academy of Sciences—Continued

	Elected
Houssay, Bernardo Alberto, Viamonte 2790, Buenos Aires, Argentina	1940
Janet, Pierre 54, rue de Varenne, Paris VII, France	1938
Jeffreys, Harold, the University, Cambridge, England	1945
Jones, Sir Harold Spencer, Royal Observatory, Greenwich, England	1943
Kapitza, Peter Leonidovich, Institute for Physical Problems, Academy of Sciences of U. S. S. R., Moscow, Russia	1946
Karrer, Paul, University of Zurich, Zurich, Switzerland	1945
Keith, Sir Arthur, Buckston Browne Farm, Downe, Farnborough, Kent, England	1941
Krogh, August, the Laboratory, Sobredden, Gentofte, Denmark	1937
Lacroix, F. Alfred A., 23 rue Jean-Dolent, Paris XIV, France	1920
Levi, Giuseppe, Anatomic Institut, Corso Massimo D'Azeglio, 52, Turin, Italy	1940
Lim, Robert K. S., Army Medical Administration, Municipal Government, Shanghai, China	1942
Planck, Max, Wangenheimstrasse 21, Berlin-Grunewald, Germany	1926
Robinson, Sir Robert, Dyson Perrins Laboratory, South Parks Road, Oxford, England	1934
Ruzicka, Leopold, Department of Organic Chemistry, Institute of Technology, Zurich, Switzerland	1944
Sherrington, Sir Charles Scott, Gonville and Caius College, Cambridge, England	1924
Sommerfeld, Arnold, Dunantstrasse 6, Munich 23, Germany	1929
Southwell, Richard Vynne, Imperial College of Science and Technology, South Kensington, London S. W. 7, England	1943
Svedberg, The, Fysikalisk-Kemiska Institutionen, University of Uppsala, Uppsala, Sweden	1945
Taylor, Sir Geoffrey Ingram, Trinity College, Cambridge, England	1945
Thompson, Sir D'Arcy Wentworth, 44 South Street, St. Andrews, Fife. Scotland	1943
Valle-Poussin, C. de la, University of Louvain, Louvain, Belgium	1929
Van der Bijl, Hendrik Johannes, 722 Escom House, Rissik Street, Johannesburg, South Africa	1943
Vening Meinesz, Felix Andries, Potgieterlaan 5, Amersfoort, Holland	1939
Watson, David Meredith Seares, 14 Frognal Lane, London, N. W. 3, England	1938
Wieland, Heinrich, Sophienstrasse 9, Munich 2 N. W., Germany	1932

7. MEDALISTS OF THE NATIONAL ACADEMY

	Medal	Year		Medal	Year
Abbe, Cleveland [1]	Welfare	1916	Campbell, William Wallace [1]	Draper	1906
Abbot, Charles Greeley	Draper	1910	Cannon, Annie Jump [1] [2]	do	1931
Abel, Othenio [2]	Elliot	1920	Canu, Ferdinand [1] [2]	Elliot	1923
Adams, Walter Sidney	Draper	1918	Carty, John J.[1]	Carty	1932
Albert Ier, Prince of Monaco [1] [2]	Agassiz	1918	Chandler, Seth Carlo [1]	Watson	1894
Allen, Edgar Johnson [1] [2]	do	1937	Chapin, Charles V.[1] [2]	Welfare	1928
Arkell, William Joscelyn [2]	Thompson	1944	Chapin, James P.[2]	Elliot	1932
Auwers, G. F. J. Arthur [1]	Watson	1891	Chapman, Frank Michler [1]	do	1917
Barnett, Samuel Jackson [2]	Comstock	1918	Charlier, C. V. L.[2]	Watson	1924
Bather, Francis Arthur [1] [2]	Thompson	1932	Clarke, John Mason [1]	Thompson	1925
Becquerel, Henri [1]	Barnard	1905	Coghill, George Ellett [1]	Elliot	1930
Beebe, William [2]	Elliot	1918	Colbert, Edwin H.[2]	do	1935
Berry, Edward Wilber	Thompson	1942	Conklin, Edwin Grant	Carty	1943
Bigelow, Henry Bryant	Agassiz	1931	Cumming, Hugh S.[2]	Welfare	1935
Bjerknes, Vilhelm	do	1926	Curie, Irène [2] [4]	Barnard	1940
Black, Davidson [1] [2]	Elliot	1931	Davisson, C. J	Comstock	1928
Bohr, Niels	Barnard	1925	Dean, Bashford [1] [2]	Elliot	1921
Bowen, Ira Sprague	Draper	1942	Defant, Alvert [2]	Agassiz	1932
Bragg, Sir William Henry [1] [2]	Barnard	1914	de Sitter, Willem [1]	Watson	1929
Do	Carty	1939	Deslandres, Henri	Draper	1913
Bragg, Sir (William) Lawrence.[2]	Barnard	1914	Dobzhansky, Theodosius	Elliot	1941
			Duane, William [1]	Comstock	1923
Breuil, Henri [2]	Elliot	1924	Durand, William Frederick	Carty	1945
Bridgman, P. W	Comstock	1933	Eddington, Sir Arthur Stanley.[1]	Draper	1924
Brown, Ernest William [1]	Watson	1936			
Bush, Vannevar	Welfare	1945	Einstein, Albert	Barnard	1921

See footnotes at end of table, p. 130.

7. *Medalists of the National Academy*—Continued

	Medal	Year
Ekman, V. Walfrid [2]	Agassiz	1928
Fabry, Charles [2]	Draper	1919
Fairchild, David [2]	Welfare	1933
Fowler, Alfred [1]	Draper	1920
Gardiner, J. Stanley [2]	Agassiz	1929
Gill, Sir David [1]	Watson	1899
Goethals, George Washington.[1 2]	Welfare	1914
Gorgas, William Crawford [1 2]	do	1914
Gould, Benjamin Apthorp [1]	Watson	1887
Grabau, Amadeus William [2]	Thompson	1936
Gran, Haakon Hasberg [2]	Agassiz	1934
Hale, George Ellery [1]	Draper	1904
Heisenberg, Werner [2]	Barnard	1930
Helland-Hansen, Bjorn [2]	Agassiz	1933
Hjort, Johan [2]	do	1913
Hoover, Herbert Clark	Welfare	1920
Hoover, John Edgar [2]	do	1939
Hubble, Edwin	Barnard	1935
Huggins, Sir William [1]	Draper	1901
Irwin, Malcolm Robert [2]	Elliot	1938
Iselin, Columbus, II [2]	Agassiz	1942
Joliot, F.[2 4]	Barnard	1940
Kapteyn, J. C.[1]	Watson	1913
Keeler, James Edward [1]	Draper	1899
Kerst, Donald William [2]	Comstock	1943
Knudsen, Martin [2]	Agassiz	1936
Langley, Samuel Pierpont [1]	Draper	1886
Lashley, Karl Spencer	Elliot	1943
Lawrence, Ernest Orlando	Comstock	1938
Leuschner, Armin Otto	Watson	1915
Lillie, Frank Rattray	Agassiz	1939
Lull, Richard Swann [2]	Elliot	1933
Margerie, Emmanuel de [2]	Thompson	1923
Mather, Stephen Tyng [1 2]	Welfare	1930
Mees, C. E. Kenneth [2]	Draper	1936
Merrill, George Perkins [1]	Smith	1922
Merrill, Paul Willard	Draper	1945
Michelson, Albert Abraham [1]	do	1916
Millikan, Robert Andrews	Comstock	1913
Murphy, Robert Cushman [2]	Elliot	1936
Newton, Hubert Anson [1]	Smith	1888
Northrop, John Howard	Elliot	1939
Osborn, Henry Fairfield [1]	do	1929
Painter, Theophilus Shickel	do	1934
Park, William Hallock [1 2]	Welfare	1932
Parker, George Howard	Elliot	1937
Perry, Stuart Hoffman [2]	Smith	1945
Pettersson, Otto Sven [1 2]	Agassiz	1924
Pickering, Edward Charles [1]	Draper	1888
Pinchot, Gifford [1 2]	Welfare	1916
Plaskett, John Stanley [1 2]	Draper	1934
Rayleigh, Lord [1]	Barnard	1895
Ridgway, Robert [1]	Elliot	1919
Rockefeller, John Davison, Jr.[2]	Welfare	1943
Röntgen, Wilhelm Conrad [1 2]	Barnard	1900
Rose, Wickliffe [1 2]	Welfare	1931
Rowland, Henry Augustus [1]	Draper	1890
Russell, F. F.[2]	Welfare	1935
Russell, Henry Norris	Draper	1922
Rutherford, Baron: Ernst Rutherford.[1]	Barnard	1909
Schmidt, Johannes [1 2]	Agassiz	1930
Schoenfeld, Ed.[1 2]	Watson	1889
Schuchert, Charles [1]	Thompson	1934
Scott, William Berryman	do	1930
Do	Elliot	1940
Seton, Ernest Thompson [1 2]	do	1928
Shapley, Harlow	Draper	1926
Sigsbee, Rear Adm. Charles Dwight, U. S. Navy.[1 2]	Agassiz	1920
Simpson, George Gaylord	Thompson	1943
Slipher, V. M	Draper	1932
Smith, James Perrin [1]	Thompson	1928
Stebbins, Joel	Draper	1915
Stensiö, Erik A.: Son [2]	Elliot	1927
Stiles, Charles Wardell [1 2]	Welfare	1921
Stratton, Samuel Wesley [1]	do	1917
Sverdrup, Harald Ulrik [2]	Agassiz	1938
Thompson, Sir D'Arcy Wentworth.	Elliot	1942
Ulrich, Edward Oscar [1]	Thompson	1930
Vaughan, T. Wayland	Agassiz	1935
Do	Thompson	1945
Vogel, Herman Karl [1]	Draper	1893
Vollmer, August [2]	Welfare	1934
Walcott, Charles Doolittle [1]	Thompson	1921
Watson, David Meredith Seares.	do	1941
Weber, Max [1 2]	Agassiz	1927
Westergaard, A. H.[1 2]	Walcott	1939
Wheeler, William Morton [1]	Elliot	1922
White, David [1]	Thompson	1931
Do	Walcott	1934
Whitney, Willis Rodney	Welfare	1937
Wilson, Edmund Beecher [1]	Elliot	1925
Do	Carty	1936
Wood, Robert Williams	Draper	1940
Woodward, Sir Arthur Smith.[1 2]	Thompson	1942
Wright, William Hammond	Draper	1928
Zeeman, Pieter [2]	do	1921

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[1] Deceased.
[2] Not member or foreign associate of the Academy.
[3] Joint award to Sir William Bragg and W. L. Bragg.
[4] Joint award to Iréne Curie and F. Joliot.

8. PRESIDENTS OF THE ACADEMY

Alexander Dallas Bache	1863–67
Joseph Henry	1868–78
William Barton Rogers	1879–82
Othniel Charles Marsh	1883–95
Wolcott Gibbs	1895–1900
Alexander Agassiz	1901–07
Ira Remsen	1907–13
William Henry Welch	1913–17
Charles Doolittle Walcott	1917–23
Albert Abraham Michelson	1923–27
Thomas Hunt Morgan	1927–31
William Wallace Campbell	1931–35
Frank Rattray Lillie	1935–39
Frank Baldwin Jewett	1939–

9. DECEASED MEMBERS AND FOREIGN ASSOCIATES

DECEASED MEMBERS

	Date of election	Date of death
Abbe, Cleveland	1878	Oct. 28, 1916
Abbot, Henry L	1872	Oct. 1, 1927
Abel, John Jacob	1912	May 26, 1938
Agassiz, Alexander	1866	Mar. 27, 1910
Agassiz, Louis	(2)	Dec. 14, 1873
Alexander, J. H	(2)	Mar. 2, 1867
Alexander, Stephen	(2)	June 25, 1883
Allen, J. A	1876	Aug. 29, 1921
Ames, Joseph Sweetman [3]	1909	June 24, 1943
Armsby, H. P	1920	Oct. 19, 1921
Atkinson, George Francis	1918 [1]	Nov. 14, 1918
Bache, Alexander Dallas	(2)	Feb. 14, 1867
Baekeland, Leo Henrik	1936 [1]	Feb. 23, 1944
Bailey, Solon Irving	1923	June 5, 1931
Baird, Spencer F	1864	Aug. 19, 1887
Barbour, Thomas	1933 [1]	Jan. 8, 1946
Barker, George F	1876 [1]	May 24, 1910
Barnard, E. E	1911	Feb. 6, 1923
Barnard, F. A. P	(2)	Apr. 27, 1889
Barnard, J. G	(2)	May 4, 1882
Barrell, Joseph	1919	May 4, 1919
Bartlett, W. H. C	(2)	Feb. 11, 1893
Barus, Carl	1892	Sept. 28, 1935
Bateman, Harry	1930 [1]	Jan. 21, 1946
Becker, George Ferdinand	1901	Apr. 20, 1919
Beecher, Charles Emerson	1899	Feb. 14, 1904
Bell, A. Graham	1883	Aug. 2, 1922
Benedict, Stanley Rossiter	1924 [1]	Dec. 21, 1936
Berry, Edward Wilber	1922 [1]	Sept. 20, 1945
Billings, John S	1883	Mar. 11, 1913
Birkhoff, George David	1918 [1]	Nov. 12, 1944
Blichfeldt, Hans Frederik	1920 [1]	Nov. 16, 1945
Boas, Franz	1900 [1]	Dec. 21, 1942
Bocher, Maxime	1909 [1]	Sept. 12, 1918
Boltwood, B. B	1911	Aug. 14, 1927
Boss, Lewis	1889	Oct. 5, 1912
Bowditch, Henry P	1887	Mar. 13, 1911
Bowie, William	1927 [1]	Aug. 28, 1940
Branner, J. C	1905	Mar. 1, 1922
Bray, William Crowell	1924 [1]	Feb. 24, 1946
Breasted, James Henry	1923	Dec. 2, 1935
Brewer, William H	1880	Nov. 2, 1910
Bridges, Calvin Blackman	1937	Dec. 27, 1938
Britton, Nathaniel L	1914	June 25, 1934
Brooks, William Keith	1884	Nov. 12, 1908
Brown, Ernest William	1923	July 22, 1938
Brown-Sequard, Charles E	1868	Apr. 2, 1894
Brush, George Jarvis	1868	Feb. 6, 1912
Bumstead, Henry A	1913	Dec. 31, 1920
Burgess, George K	1922 [1]	July 2, 1932
Calkins, Gary Nathan	1919 [1]	Jan. 4, 1943
Campbell, William Wallace	1902 [1]	June 14, 1938
Cannon, Walter Bradford	1914 [1]	Oct. 1, 1945
Carothers, Wallace H	1936	Apr. 29, 1937
Carty, John J	1917	Dec. 27, 1932
Casey, Thomas L	1890	Mar. 25, 1896
Caswell, Alexis	(2)	Jan. 8, 1877
Cattell, James McKeen	1901 [1]	Jan. 20, 1944
Chamberlin, Thomas Chrowder	1903	Nov. 15, 1928
Chandler, Charles Frederick	1874	Aug. 25, 1925
Chandler, Seth Carlo	1888 [1]	Dec. 31, 1913
Chapman, Frank Michler	1921 [1]	Nov. 15, 1945
Chauvenet, William	(2)	Dec. 13, 1877
Chittenden, Russell Henry	1890	Dec. 26, 1943
Clark, Henry James	1872	July 1, 1879
Clark, William B	1908	July 27, 1913
Clarke, Frank Wigglesworth	1909	May 23, 1931
Clarke, John M	1909	May 29, 1925
Clinton, George Perkins	1930	Aug. 13, 1937
Coffin, James H	1869	Feb. 6, 1873
Coffin, J. H. C	(2)	Jan. 8, 1890
Coghill, George Ellett	1935	July 23, 1941
Comstock, Cyrus B	1884	May 29, 1910
Comstock, George C	1899	May 11, 1934
Cook, George H	1887	Sept. 22, 1889
Cooke, Josiah P	1872	Sept. 3, 1894
Cope, Edward D	1872	Apr. 12, 1897
Coues, Elliott	1877	Dec. 25, 1899
Coulter, John Merle	1909	Dec. 23, 1928
Councilman, William T. [4]	1904	May 27, 1933
Crafts, James M	1872	June 21, 1917
Curtis, Heber Doust	1919	Jan. 9, 1942
Cushing, Harvey (Williams)	1917	Oct. 7, 1939
Dall, William H	1897 [1]	Mar. 27, 1927
Dalton, J. C	1864	Feb. 2, 1889
Dana, E. S	1884	June 16, 1935
Dana, James D	(2)	Apr. 14, 1895
Davenport, Charles Benedict	1912 [1]	Feb. 18, 1944
Davidson, George	1874	Dec. 2, 1911
Davis, Charles H	(2)	Feb. 18, 1877
Davis, William M	1904	Feb. 5, 1934
Dodge, Raymond [5]	1924 [1]	Apr. 8, 1942
Donaldson, Henry Herbert	1914	Jan. 24, 1938
Draper, Henry	1877	Nov. 20, 1882
Draper, John W	1877	Jan. 4, 1882
Duane, William	1920	Mar. 7, 1935
Dutton, C. E	1884 [1]	Jan. 4, 1912
Eads, James B	1872	Mar. 8, 1887
East, Edward Murray	1925	Nov. 9, 1938
Edison, Thomas A	1927	Oct. 18, 1931
Eigenmann, Carl H	1923	Apr. 24, 1927
Elkin, W. L	1895	May 30, 1933
Emmet, William LeRoy	1921	Sept. 26, 1941
Emmons, Samuel F	1892	Mar. 28, 1911
Englemann, George	(2)	Feb. 4, 1884
Ewing, James	1935 [1]	May 16, 1943
Farlow, W. G	1879	June 3, 1919
Ferrell, William	1868	Sept. 18, 1891
Fewkes, Jesse Walter	1914	May 31, 1930
Flexner, Simon	1908 [1]	May 2, 1946
Folin, Otto	1916 [1]	Oct. 25, 1934
Forbes, Stephen Alfred	1918	Mar. 13, 1930
Franklin, E. C	1914 [1]	Feb. 4, 1937
Frazer, John Fries	(2)	Oct. 12, 1872
Freeman, John R	1918	Oct. 6, 1932
Frost, Edwin Brant	1908	May 14, 1935
Gabb, William M	1876	May 30, 1878
Gay, Frederick Parker	1939 [1]	July 14, 1939
Genth, F. A	1872	Feb. 2, 1893
Gherardi, Bancroft	1933 [1]	Aug. 14, 1941
Gibbs, Josiah Willard	1879	Apr. 28, 1903
Gibbs, Wolcott	(2)	Dec. 9, 1908
Gilbert, Grove Karl	1883	May 1, 1918
Gill, Theodore Nicholas	1873	Sept. 25, 1914
Gilliss, James Melville	(2)	Feb. 9, 1865
Gooch, Frank Austin	1897	Aug. 12, 1929
Goodale, G. L	1890	Apr. 15, 1923
Goode, G. Brown	1888	Sept. 6, 1896
Gortner, Ross Aiken	1935	Sept. 30, 1942
Gould, Augustus A	(2)	Sept. 15, 1866
Gould, Benjamin A	(2)	Nov. 26, 1896
Gray, Asa	(2)	Jan. 30, 1888
Guyot, Arnold	(2)	Feb. 8, 1884
Hadley, James	1872	Nov. 14, 1872
Hague, Arnold	1885	May 15, 1917
Haldeman, S. S	1876	Sept. 20, 1880
Hale, George Ellery	1902	Feb. 21, 1938
Hall, Asaph	1875	Nov. 22, 1907
Hall, Edwin Herbert	1911	Nov. 20, 1938
Hall, G. Stanley	1915	Apr. 24, 1924
Hall, James	(2)	Aug. 7, 1898
Halsted, W. S	1917	Sept. 7, 1922
Harper, Robert Almer	1911 [1]	May 12, 1946
Hastings, C. S	1889	Jan. 29, 1932
Hayden, F. V	1873	Dec. 22, 1887
Hayford, John F	1911	Mar. 10, 1925
Henderson, Lawrence Joseph	1919	Feb 10, 1942
Henderson, Yandell	1923 [1]	Feb. 18, 1944
Henry, Joseph	(2)	May 13, 1878
Hibbert, Harold	1945 [1]	May 13, 1945

See footnotes at end of table, p. 133.

9. Deceased members and foreign associates—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death
Hilgard, Eugene W	1872	Jan. 8, 1916
Hilgard, Julius E	(2)	May 9, 1890
Hill, George William	1874	Apr. 16, 1914
Hill, Henry B	1883	Apr. 6, 1903
Hillebrand, W. F	1908	Feb. 7, 1925
Hitchcock, Edward	(2)	Feb. 27, 1864
Holbrook, J. E	1868	Sept. 8, 1871
Holden, Edward Singleton	1885	Mar. 16, 1914
Holmes, William H.[6]	1905	Apr. 20, 1933
Howe, H. M	1917	May 14, 1922
Howe, Marshall Avery	1923	Dec. 24, 1936
Howell, William Henry	1905[1]	Feb. 6, 1945
Hrdlicka, Ales	1921	Sept. 5, 1943
Hubbard, J. S	(2)	Aug. 16, 1863
Humphreys, A. A	(2)	Dec. 27, 1883
Hunt, T. Sterry	1873	Feb. 12, 1892
Huntington, G. S	1924	Jan. 5, 1927
Hyatt, Alpheus	1875	Jan. 15, 1902
Iddings, Joseph P	1907[1]	Sept. 8, 1920
Jackson, Charles Loring[7]	1883[1]	Oct. 28, 1935
James, William[8]	1903[1]	Aug. 26, 1910
Johnson, Douglas Wilson	1932	Feb. 24, 1944
Johnson, S. W	1866	July 21, 1909
Jones, Lewis Ralph	1920[1]	Apr. 1, 1945
Jones, Walter	1918	Feb. 28, 1935
Jordan, Edwin Oakes	1936	Sept. 2, 1936
Keeler, J. E	1900	Aug. 12, 1900
Keith, Arthur	1928[1]	Feb. 7, 1944
Kellogg, Vernon Lyman	1930	Aug. 8, 1937
Kemp, James F	1911	Nov. 17, 1926
Kennelly, Arthur Edwin	1921	June 18, 1939
King, Clarence	1876	Dec. 24, 1901
Kirtland, Jared P	1865	Dec. 10, 1877
Kohler, Elmer Peter	1920[1]	May 24, 1938
Landsteiner, Karl	1932[1]	June 26, 1943
Lane, J. Homer	1872	May 3, 1880
Langley, Samuel P	1876	Feb. 27, 1906
Laufer, Berthold	1930	Sept. 13, 1934
Lea, Matthew Carey	1892	Mar. 15, 1897
Le Conte, John	1878	Apr. 29, 1891
Le Conte, John L	(2)	Nov. 15, 1883
Le Conte, Joseph	1875	July 6, 1901
Leidy, Joseph	(2)	Apr. 30, 1891
Lesley, J. Peter	(2)	June 1, 1903
Lesquereux, Leo	1864	Oct. 25, 1889
Levene, Phoebus Aaron Theodor	1916	Sept. 6, 1940
Leverett, Frank	1929	Nov. 15, 1943
Lindgren, Waldemar	1909[1]	Nov. 4, 1939
Loeb, Jacques	1910	Feb. 12, 1924
Longstreth, Miers F	(2)	Dec. 27, 1891
Loomis, Elias	1873	Aug. 15, 1889
Lovering, Joseph	1873	Jan. 18, 1892
Lusk, Graham	1915	July 18, 1932
Lyman, Theodore	1872	Sept. 9, 1897
McClung, Clarence Erwin	1920[1]	Jan. 17, 1946
MacCallum, William George[9]	1921	Feb. 3, 1944
Mahan, D. H	(2)	Sept. 16, 1871
Mall, Franklin P	1907	Nov. 17, 1917
Marsh, G. P	1866	July 23, 1882
Marsh, O. C	1874	Mar. 18, 1899
Mayer, Alfred M	1872	July 13, 1897
Mayor, A. G	1916	June 25, 1922
Mayo-Smith, Richmond	1890	Nov. 11, 1901
Meek, F. B	1869	Dec. 21, 1876
Meigs, M. C	1865	Jan. 2, 1892
Meltzer, Samuel James	1912	Nov. 8, 1920
Mendel, Lafayette B.[10]	1913	Dec. 9, 1935
Mendenhall, Charles Elwood	1918	Aug. 18, 1935
Mendenhall, T. C	1887	Mar. 22, 1924
Merriam, Clinton Hart	1902	Mar. 19, 1942
Merriam, John Campbell	1918[1]	Oct. 30, 1945
Merrill, George Perkins	1922	Aug. 15, 1929
Michael, Arthur	1889[1]	Feb. 8, 1942
Michelson, A. A	1888	May 9, 1931
Midgley, Thomas, Jr	1942[1]	Nov. 2, 1944
Miller, Dayton Clarence	1921	Feb. 22, 1941
Minot, Charles Sedgwick	1897	Nov. 19, 1914
Mitchell, Henry	1885	Dec. 1, 1902
Mitchell, Silas Weir	1865[1]	Jan. 4, 1914
Modjeski, Ralph	1925	June 26, 1940
Moore, E. H	1901	Dec. 30, 1932
Morgan, Lewis H	1875	Dec. 17, 1881
Morgan, Thomas Hunt	1909[1]	Dec. 4, 1945
Morley, E. W	1897	Feb. 24, 1923
Morse, Edward Sylvester	1876	Dec. 20, 1925
Morse, Harmon N	1907	Sept. 8, 1920
Morton, Henry	1874	May 9, 1902
Nef, John Ulric	1904[1]	Aug. 13, 1915
Newberry, J. S	(2)	Dec. 7, 1892
Newcomb, Simon	1869	July 11, 1909
Newton, H. A	(2)	Aug. 12, 1896
Newton, John	1876	May 1, 1895
Nichols, Edward Leamington	1901	Nov. 10, 1937
Nichols, Ernest Fox	1908	Apr. 29, 1924
Norris, James Flack	1934[1]	Aug. 3, 1940
Norton, William A	1873	Sept. 21, 1883
Noyes, Arthur Amos	1905[1]	June 3, 1936
Noyes, William Albert	1910[1]	Oct. 24, 1941
Oliver, James E	1872	Mar. 27, 1895
Osborn, Henry Fairfield	1900	Nov. 6, 1935
Osborne, Thomas Burr	1910	Jan. 29, 1929
Osgood, William Fogg	1904[1]	July 22, 1943
Packard, A. S	1872	Feb. 14, 1900
Pearl, Raymond	1916	Nov. 17, 1940
Peirce, Benjamin[11]	(1 2)	Oct. 6, 1880
Peirce, Benjamin Osgood	1906	Jan. 14, 1915
Peirce, Charles S. S	1876[1]	Apr. 20, 1914
Penfield, Samuel L	1900	Aug. 13, 1904
Peters, C. H. F	1876[1]	July 18, 1890
Pickering, Edward C	1873	Feb. 3, 1919
Prisson, Louis V	1913[1]	Dec. 8, 1919
Pourtales, L. F	1873	July 19, 1880
Powell, John W	1880	Sept. 23, 1902
Power, Frederick B	1924[1]	Mar. 26, 1927
Prudden, T. Mitchell	1901	Apr. 10, 1924
Pumpelly, Raphael	1872	Aug. 10, 1923
Pupin, Michael Idvorsky	1905	Mar. 12, 1935
Putnam, Frederic W	1885	Aug. 18, 1915
Ransome, F. L	1914	Oct. 6, 1935
Ranson, Stephen Walter	1940	Aug. 30, 1942
Reid, Harry Fielding	1912[1]	June 18, 1944
Remsen, Ira	1882	Mar. 4, 1927
Richards, T. W	1899[1]	Apr. 2, 1928
Richtmyer, Floyd Karker	1932	Nov. 7, 1939
Ridgway, Robert	1917	Mar. 25, 1929
Robinson, B. L	1921	July 27, 1935
Rodgers, John	(2)	May 5, 1882
Rogers, Fairman	(2)	Aug. 22, 1900
Rogers, Robert E.[12]	(2)	Sept. 6, 1884
Rogers, William A	1885	Mar. 1, 1898
Rogers, William B.[12]	(2)	May 30, 1882
Rood, Ogden N	1865	Nov. 12, 1902
Rosa, E. B	1913	May 17, 1911
Rowland, Henry A	1881	Apr. 16, 1901
Royce, Josiah	1906[1]	Sept. 14, 1916
Rutherford, Lewis M	(2)	May 30, 1892
Ryan, Harris Joseph	1920	July 3, 1934
Sabine, Wallace C. W	1917	Jan. 10, 1919
St. John, Charles Edward	1924	Apr. 26, 1935
Sapir, Edward	1934[1]	Feb. 4, 1939
Sargent, Charles S	1895	Mar. 22, 1927
Sauveur, Albert	1927	Jan. 26, 1939
Saxton, Joseph	(2)	Oct. 26, 1873
Schlesinger, Frank	1916	July 10, 1943
Schott, Charles A	1872	July 31, 1901
Schuchert, Charles	1910[1]	Nov. 20, 1942
Scudder, Samuel H	1877	May 17, 1911
Sellers, William	1873[1]	Jan. 24, 1905
Setchell, William Albert	1919	Apr. 4, 1943
Silliman, Benjamin, Sr	(2)	Nov. 24, 1864
Silliman, Benjamin, Jr	(2)	Jan. 14, 1885
Smith, Alexander	1915	Sept. 8, 1922

See footnotes at end of table, p. 133.

9. *Deceased members and foreign associates*—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death		Date of election	Date of death
Smith, Edgar F	1899	May 3, 1928	Vaughan, Victor Clarence	1915 [1]	Nov. 21, 1929
Smith, Erwin F	1913	Apr. 6, 1927	Verrill, Addison E.[15]	1872	Dec. 10, 1926
Smith, J. Lawrence	1872	Oct. 12, 1883	Walcott, Charles D	1896 [1]	Feb. 9, 1927
Smith, James Perrin	1925 [1]	Jan. 1, 1931	Walker, Francis A	1878	Jan. 5, 1897
Smith, Sidney Irving [14]	1884	May 6, 1926	Warren, G. K	1876	Aug. 8, 1882
Smith, Theobald	1908	Dec. 10, 1934	Washburn, E. W	1932	Feb. 6, 1934
Sperry, Elmer A	1925 [1]	June 16, 1930	Washburn, Margaret Floy [16]	1931 [1]	Oct. 29, 1939
Squier, George O	1919	Mar. 24, 1934	Washington, H. S	1921 [1]	Jan. 7, 1934
Stejneger, Leonhard	1923	Feb. 28, 1943	Watson, James C	1868	Nov. 23, 1880
Stieglitz, Julius Oscar	1911	Jan. 10, 1937	Watson, Sereno	1889	Mar. 9, 1892
Stillwell, Lewis Buckley	1921 [1]	Jan. 19, 1941	Webster, A. G	1903	May 15, 1923
Stimpson, William	1868	May 26, 1872	Welch, William H	1895	Apr. 30, 1934
Stockard, Charles Rupert	1922 [1]	Apr. 7, 1939	Wells, Harry Gideon	1925 [1]	Apr. 26, 1943
Story, William Edward	1908 [1]	Apr. 11, 1930	Wells, Horace L	1903	Dec. 19, 1924
Stratton, S. W	1917	Oct. 18, 1931	Wheeler, Henry Lord	1909 [1]	Oct. 30, 1914
Strong, Theodore	([2])	Feb. 1, 1869	Wheeler, William Morton	1912	Apr. 19, 1937
Sullivant, W. S	1872	Apr. 30, 1873	White, Charles A	1889	June 29, 1910
Sumner, Francis Bertody	1937 [1]	Sept. 6, 1945	White, David	1912	Feb. 7, 1935
Swain, George F	1923	July 1, 1931	White, Henry Seely	1915 [1]	May 20, 1943
Swasey, Ambrose	1922	June 15, 1937	Whitman, C. O	1895	Dec. 6, 1910
Taylor, Charles Vincent	1943 [1]	Feb. 22, 1946	Whitney, Josiah D.[11]	([2])	Aug. 19, 1896
Taylor, David Watson	1918	July 28, 1940	Whitney, William D.[13]	1865 [1]	June 29, 1894
Tennent, David Hilt	1929 [1]	Jan. 14, 1941	Wilczynski, E. J.[17]	1919	Sept. 14, 1932
Thaxter, Roland	1912	Apr. 22, 1932	Williston, Samuel W	1915	Aug. 30, 1918
Thomson, Elihu	1907	Mar. 13, 1937	Wilson, Edmund Beecher	1899	Mar. 3, 1939
Torrey, John	([2])	Mar. 10, 1873	Wilson, Henry VanPeters	1927 [1]	Jan. 4, 1939
Totten, J. G	([2])	Apr. 22, 1864	Winlock, Joseph	([2])	June 11, 1875
Trelease, William	1902 [1]	Jan. 1, 1945	Wood, Horatio C	1879 [1]	Jan. 3, 1920
Trowbridge, Augustus	1919	Mar. 14, 1934	Woodward, J. J	1873	Aug. 17, 1884
Trowbridge, John	1878	Feb. 18, 1923	Woodward, Robert S	1896	June 29, 1924
Trowbridge, William P	1872	Aug. 12, 1892	Worthen, A. H	1872	May 6, 1888
Trumbull, James H	1872	Aug. 5, 1897	Wright, Arthur Williams	1881	Dec. 19, 1915
Tuckerman, Edward	1868	Mar. 15, 1886	Wyman, Jeffries	([2])	Sept. 4, 1878
Ulrich, Edward Oscar	1917 [1]	Feb. 22, 1944	Young, Charles A	1872	Jan. 3, 1904
Van Hise, C. R	1902	Nov. 19, 1918	Zinsser, Hans	1924 [1]	Sept. 4, 1940
Van Vleck, Edward Burr	1911 [1]	June 3, 1943			

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[1] Biographical memoirs have not been published.
[2] Charter member, Mar. 3, 1863.
[3] Transferred to roll of members emeriti, 1938.
[4] Transferred to roll of members emeriti, 1929.
[5] Transferred to roll of members emeriti, 1936.
[6] Transferred to roll of members emeriti, 1932.
[7] Transferred to roll of members emeriti in 1933.
[8] Resigned, 1909.
[9] Transferred to roll of members emeriti in 1943.
[10] Transferred to roll of members emeriti in 1935.
[11] Resigned, 1874.
[12] Dropped, 1866; reelected, 1875.
[13] Dropped, 1866; reelected, 1872.
[14] Transferred to roll of members emeriti in 1908.
[15] Transferred to roll of members emeriti in 1924.
[16] Transferred to roll of members emeriti in 1937.
[17] Transferred to roll of members emeriti in 1925.

9. *Deceased members and foreign associates*—Continued

DECEASED FOREIGN ASSOCIATES

Adams, Frank Dawson
Adams, J. C.
Airy, Sir George B.
Argelander, F. W. A.
Arrhenius, S. A.
Auwers, G. F. J. Arthur
Backlund, Oskar
Baer, Karl Ernest von
Baeyer, Adolf von
Barrande, Joachin
Barrois, Charles
Bateson, William
Beaumont, L. Elie de
Becquerel, Henri
Berthelot, M. P. E.
Bertrand, J. L. F.
Boltzmann, Ludwig
Bornet, Edouard
Boussingault, J. B. J. D.
Boveri, Theodor
Bragg, Sir William
Braun, Alexander
Brewster, Sir David
Brøgger, W. C.
Bunsen, Robert W.
Burmeister, C. H. C.
Candolle, Alphonse de
Cayley, Arthur
Chasles, Michel
Chevreul, M. E.
Clausius, Rudolph
Cornu, Alfred
Crookes, Sir William
Darboux, Gaston
Darwin, Sir George Howard
de Sitter, Willem
de Vries, Hugo
Dewar, Sir James
Dove, H. W.
Dumas, J. B.
Dyson, Sir Frank Watson
Eddington, Sir Arthur Stanley
Ehrlich, Paul
Eijkman, Christian
Engler, Adolph
Faraday, Michael
Fischer, Emil
Forsyth, A. R.
Fowler, Alfred
Geikie, Sir Archibald
Gengenbaur, Karl
Gill, Sir David
Gyldêm, Hugo
Goebel, K. E. von
Groth, Paul von
Haber, Fritz
Hadfield, Sir Robert A.
Haldane, John Scott
Hamilton, Sir William Rowan
Heim, Albert
Helmholtz, Baron H. von
Hertwig, Richard
Hilbert, David
Hoff, J. H. van't
Hofmann, A. W.
Hooker, Sir Joseph D.
Huggins, Sir William
Huxley, T. H.
Ibañez, Carlos
Janssen, J.
Jordan, M. E. C.
Joule, James P.
Kapteyn, J. C.
Kekulé, August
Kelvin, Lord
Kirchoff, G. R.
Klein, Felix
Koch, Robert
Kohlrausch, Frederich
Kölliker, Albert von
Kossel, Albrecht
Kronecker, Hugo
Kustner, Karl Friedrich
Lacaze-Duthiers, Henri de
Lankester, Sir E. Ray
Larmor, Sir Joseph
Leuckart, Rudolph
Lie, Sophus
Liebig, Justus von
Lister, Lord
Loewy, Maurice
Lorentz, Hendrik Antoon
Ludwig, K. F. W.
Marconi, Marchese
Marey, E. J.
Mendeléeff, D. I.
Milne-Edwards, Henri
Moissan, Henri
Murchison, Sir Roderick I.
Murray, Sir John
Onnes, Heike Kamerlingh
Oppolzer, Theodore von
Ostwald, Wilhelm
Owen, Sir Richard
Parsons, Sir Charles Algernon
Pasteur, Louis
Pavlov, Ivan P.
Penck, Albrecht
Peters, C. H. F.
Pfeffer, Wilhelm
Picard, Emile
Plano, G. A. A.
Poincairé, Jules Henri
Prain, Sir David
Rammelsberg, C. F.
Ramon y Cajal, Santing
Ramsay, Sir William
Rayleigh, Lord
Regnault, Victor
Retzius, Gustav
Reymond, Emil Du Bois
Richthofen, F. von
Rosenbusch, Karl Harry Ferdinand
Roux, Wilhelm
Rubner, Max
Rutherford, Lord
Sabatier, Paul
Sachs, Julius von
Schiaparelli, Giovanni
Schneider, Charles Eugene
Schuster, Sir Arthur
Seeliger, Hugo R. von
Sørensen, Søren Peter Lauritz
Spearman, Charles Edward
Spemann, Hans
Stas, Jean Servais
Stokes, Sir George G.
Strasburger, Edouard
Struve, Otto von
Stumpf, Carl
Suess, Eduard
Sylvester, J. J.
Thomson, Sir Joseph J.
Tisserand, F. F.
Van der Waals, J. D.
Virchow, Rudolph von
Vogel, H. C.
Volterra, Vito
Waldeyer, Wilhelm
Weierstrauss, Karl
Weismann, August
Willstaetter, Richard
Wöhler, Frederich
Wolf, Max F. J. C.
Wundt, Wilhelm
Würtz, Adolph
Zirkel, Ferdinand
Zittell, K. A. R. von

APPENDIX B

NATIONAL RESEARCH COUNCIL

1. EXECUTIVE ORDER ISSUED BY THE PRESIDENT OF THE UNITED STATES, MAY 11, 1918

The National Research Council was organized in 1916 at the request of the President by the National Academy of Sciences, under its congressional charter, as a measure of national preparedness. The work accomplished by the Council in organizing research and in securing cooperation of military and civilian agencies in the solution of military problems demonstrates its capacity for larger service. The National Academy of Sciences is therefore requested to perpetuate the National Research Council, the duties of which shall be as follows:

1. In general, to stimulate research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare.
2. To survey the larger possibilities of science, to formulate comprehensive projects of research, and to develop effective means of utilizing the scientific and technical resources of the country for dealing with these projects.
3. To promote cooperation in research, at home and abroad, in order to secure concentration of effort, minimize duplication, and stimulate progress; but in all cooperative undertakings to give encouragement to individual initiative, as fundamentally important to the advancement of science.
4. To serve as a means of bringing American and foreign investigators into active cooperation with the scientific and technical services of the War and Navy Departments and with those of the civil branches of the Government.
5. To direct the attention of scientific and technical investigators to the present importance of military and industrial problems in connection with the war, and to aid in the solution of these problems by organizing specific researches.
6. To gather and collate scientific and technical information, at home and abroad, in cooperation with governmental and other agencies, and to render such information available to duly accredited persons.

Effective prosecution of the Council's work requires the cordial collaboration of the scientific and technical branches of the Government, both military and civil. To this end representatives of the Government, upon the nomination of the National Academy of Sciences, will be designated by the President as members of the Council, as heretofore, and the heads of the departments immediately concerned will continue to cooperate in every way that may be required.

WOODROW WILSON.

THE WHITE HOUSE, *May 11, 1918.*

(No. 2859)

2. ARTICLES OF ORGANIZATION, NATIONAL RESEARCH COUNCIL

PREAMBLE

The National Academy of Sciences, under the authority conferred upon it by its charter enacted by the Congress, and approved by President Lincoln on March 3, 1863, and pursuant to the request expressed in an Executive order made by President Wilson on May 11, 1918, adopts the following Articles of Organization for the National Research Council, to replace the organization under which it has operated heretofore.

ARTICLE I.—PURPOSE

It shall be the purpose of the National Research Council to promote research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare, as expressed in the Executive order of May 11, 1918.

ARTICLE II.—MEMBERSHIP

SECTION 1. The membership of the National Research Council shall be chosen with the view of rendering the Council an effective federation of the principal research agencies in the United States concerned with the fields of science and technology named in article I.

SEC. 2. The Council shall be composed of—

1. Representatives of national scientific and technical societies.
2. Representatives of the Government, as provided in the Executive order.
3. Representatives of other research organizations and other persons whose aid may advance the objects of the Council.

SEC. 3. The membership of the Council shall consist specifically of the members of the executive board and the members of the divisions, constituted as provided in articles III and IV.

SEC. 4. Membership in the Council shall be limited to citizens of the United States. This, however, shall not be construed as applying to membership in committees, appointed by or acting under the Council, whose members are not necessarily members of the Council, provided that members not citizens of the United States shall in no case form a majority of any committee.

ARTICLE III.—DIVISIONS

SECTION 1. The Council shall be organized in divisions of two classes:

A. Divisions dealing with the more general relations and activities of the Council.

B. Divisions dealing with special branches of science and technology.

SEC. 2. The divisions of the Council shall be as follows:

A. Division of general relations:
    I. Division of foreign relations.
B. Divisions of science and technology:
    II. Division of physical sciences.
    III. Division of engineering and industrial research.
    IV. Division of chemistry and chemical technology.
    V. Division of geology and geography.
    VI. Division of medical sciences.
    VII. Division of biology and agriculture.
    VIII. Division of anthropology and psychology.

SEC. 3. The number of divisions and the grouping of subjects in article III, section 2, may be modified by the executive board of the National Research Council.

SEC. 4 (*a*). Each division of general relations shall consist of a chairman, one or more vice chairmen, representatives of the Government and of national and international organizations, and members at large, appointed as provided in article VI.

(*b*) There may be an executive committee of each division of general relations, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30, or, in case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division, except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

SEC. 5 (*a*). Each division of science and technology shall consist of a chairman and of representatives of the Government and of such national societies as seem essential for the conduct of the business of the division appointed as provided in article VI. Members at large may also be appointed as provided in article VI.

(*b*) There may be an executive committee of each division of science and technology, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, confirmed by the executive board, and hold office for 1 year terminating on June 30, or, in the case of any one or more of such executive committees, on such later date as the chairman of the Council may have previously ordered. Between meetings of a division its executive committee shall have power to act on all matters for the division except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

(*c*) The terms of office of the chairmen of the divisions of science and technology, other than that of engineering and industrial research, shall be so arranged by the chairman of the Council that one-third of these terms expire each year.

SEC. 6. The chairman of each division shall be ex officio a member of all committees of the division.

SEC. 7. Actions by the division involving matters of policy shall be subject to approval by the executive board.

ARTICLE IV.—ADMINISTRATION

SECTION 1. The general officers of the National Research Council shall be a chairman, chosen as provided in article V, section 1; a treasurer (see art. V, sec. 3); and such honorary officers as may be appointed by the Council of the National Academy of Sciences, upon nomination by the executive board.

SEC. 2. The affairs of the National Research Council shall be administered by an executive board and its administrative committee. Actions by these bodies involving financial responsibilities or the appointment of general officers must be approved by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy of Sciences under general authority, or under such special authority as may be conferred on it by the Council of the National Academy of Sciences.

SEC. 3. The executive board shall consist of the members of the executive committee of the Council of the National Academy of Sciences; the chairman, treasurer, and honorary officers of the National Research Council; the chairmen of the divisions of general relations and of the divisions of science and technology of the National Research Council; the members of the committee on policies; the president or other representative of the American Association for the Advancement of Science; the chairman or other representative of the Engineering Foundation; and six members at large appointed for a term of 3 years, or for an unexpired term in case of vacancy, by the president of the National Academy of Sciences, on recommendation of the executive board. The president of the National Academy of Sciences shall preside at the meetings of the executive board.

SEC. 4. In administrative matters the executive board shall be represented by an administrative committee, which shall consist of the chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy, and the chairmen of the divisions of the National Research Council.

SEC. 5. The administrative committee shall have power to act upon all matters except those which may be reserved by the executive board for its own action; but the administrative committee shall report all its actions to the executive board. The administrative committee shall prepare the annual budget for submission to the executive board at its annual meeting.

SEC. 6. (*a*) There shall also be a committee on policies of the National Research Council. This committee shall be composed of the president of the National Academy of Sciences, and nine members appointed for terms of 3 years by the executive board, preferably so that it may consist largely of persons who have had past experience in the affairs of the National Research Council. The executive board shall appoint the chairman of the committee on policies to serve for 1 year beginning July 1 or until his successor is appointed. This committee shall submit to the executive board recommendations as to general policies.

(*b*) At the annual meeting of the executive board in 1933, nine members of the committee on policies shall be appointed; three to serve for 1 year, three for 2 years, and three for 3 years, their respective terms to be determined by lot. Each year thereafter the terms of three members will expire, and their successors, to serve for 3 years each shall be appointed at the annual meeting of the executive board in that year. The date of expiration of the term shall be June 30. In case of vacancy the executive board may fill the unexpired term by appointment.

ARTICLE V.—APPOINTMENT AND DUTIES OF OFFICERS OF THE RESEARCH COUNCIL

SECTION 1. The chairman of the National Research Council shall be appointed by the executive board, subject to confirmation by the Council of the National Academy of Sciences, and shall hold office at the pleasure of the board. The chairman shall be the executive officer of the National Research Council and shall have charge of its general administration. He shall act as chairman of its administrative committee, and shall be, ex officio, a member of all divisions and committees of the Council.

SEC. 2. There shall be appointed by the executive board, upon recommendation of the chairman of the National Research Council, an officer with the title of executive secretary of the Council, whose duties it shall be to assist the chairman in the administration of the Council. He shall attend all meetings of the executive board and of the administrative committee, and act as their secretary, and shall hold office at the pleasure of the board.

SEC. 3. The treasurer of the National Academy of Sciences shall be, ex officio, treasurer of the National Research Council.

SEC. 4. In case of a vacancy in the office of the chairman of the National Research Council or of the absence or disability of the chairman, an acting chairman may be appointed by the Council of the National Academy of Sciences, or by the executive committee of the Council of the National Academy, upon recommendation of the executive board of the Research Council or its administrative committee.

ARTICLE VI.—NOMINATION AND APPOINTMENT OF OFFICERS AND MEMBERS OF DIVISIONS

SECTION 1. *Divisions of science and technology.*—(*a*) The chairman of each division shall be nominated to the executive board by the division concerned, with the approval of the administrative committee. The chairman shall be appointed by the executive board at its annual meeting for a term of 3 years.

(*b*) The national societies to be represented in each of the divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of national societies in each division shall be nominated by the societies, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the President of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

(*d*) Members at large, if any, in each division shall be nominated by the division concerned, with the approval of the executive board, and shall be appointed by the president of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

SEC. 2. *Divisions of general relations.*—(*a*) The officers of each of the divisions of general relations shall be appointed by the executive board to serve for a period of 3 years, except that the foreign secretary of the National Academy of Sciences shall be, ex officio, chairman of the division of foreign relations.

(*b*) The national and international societies or associations to be represented in each of these divisions shall be determined by the division concerned, subject to the approval of the executive board.

(*c*) The representatives of such societies or associations shall be nominated by the societies or associations, at the request of the chairman of the division, and, after approval by the executive board, shall be appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

(*d*) Members at large in each division shall be nominated by the division, approved by the executive board, and appointed by the president of the National Academy of Sciences to membership in the Council for a period of 3 years, and assigned to the division.

SEC. 3. The Government bureaus, civil and military, to be represented in the divisions of the Council shall be determined by the Council of the National Academy of Sciences, on recommendation from the executive board of the National Research Council.

SEC. 4. The representatives of the Government shall be selected by the secretaries of the departments concerned, after conference with the chairman of the National Research Council, and the names of those thus proposed shall be presented to the president of the National Academy of Sciences to be nominated by him to the President of the United States for designation for service with the National Research Council. Each Government representative shall serve during the pleasure of the President of the United States, not to exceed a term of 3 years, and a vacancy from any cause shall be filled for the remainder of the term in the same manner as in the case of the original designation.

SEC. 5. The terms of office of officers and members, unless otherwise provided, shall terminate on June 30 of the year in which their appointments expire.

SEC. 6. Vacancies occurring in the divisions of either class, except as to representatives of the Government, may be filled for the unexpired term by the executive board, upon recommendation of the division concerned, or ad interim by the administrative committee upon similar recommendation.

ARTICLE VII.—MEETINGS

SECTION 1. The annual meeting of the executive board shall be held in April in the city of Washington at the time of the meeting of the National Academy of Sciences. Special meetings may be held at other times at the call of the chairman of the National Research Council. A majority of the members of the board shall constitute a quorum for the transaction of business.

SEC. 2. Stated meetings of the administrative committee shall be held in the city of Washington at least five times a year, at such dates as shall be determined by the chairman of the National Research Council. Special meetings may be held at other times on call of the chairman. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 3. The committee on policies shall hold one stated meeting during the year, preferably in Washington at the time of the annual meeting of the National Academy of Sciences. Special meetings may be held at any time on call of the chairman of the committee. Five members of the committee shall constitute a quorum for the transaction of business.

SEC. 4. Each division of science and technology shall hold at least one stated meeting during the year, at a time to be determined by the chairman of the division in consultation with the chairman of the Council. Special meetings may be called at other times by the chairman of the division.

SEC. 5. Meetings of any division of general relations shall be held upon the call of its chairman.

ARTICLE VIII.—PUBLICATIONS AND REPORTS

SECTION 1. An Annual report on the work of the National Research Council shall be presented by the chairman to the National Academy of Sciences.

SEC. 2. Other publications of the National Research Council may include papers, bulletins, reports, and memoirs, which may appear in Proceedings or Memoirs of the National Academy of Sciences, in the publications of other societies, in scientific and technical journals, or in a separate series of the National Research Council.

ARTICLE IX.—AMENDMENTS

SECTION 1. By action of the National Academy of Sciences, on April 29, 1919, power of amendment of these articles of organization is given to the Council of the National Academy of Sciences.

3. BYLAWS

1. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee of the National Academy of Sciences and be directly responsible to the treasurer.

2. The executive board may create such other salaried officers as are necessary for the transaction of the business of the Council.

3. Officers of the Council, members of the executive board, and special agents of the Council, when authorized to travel on business of the Council, may be allowed their necessary expenses.

4. Members of the divisions of science and technology and members of the executive committee of any division of general relations, when attending an authorized meeting, may be reimbursed for traveling expenses, or such portion thereof as the division chairman may determine, within the funds made available for that purpose in that budget.

5. The chairman of each division shall direct the administrative and scientific work of the division.

6. In the fiscal year in which the term of office of a chairman of a division expires it shall be his duty to appoint, on or before February 1, a nominating committee of three, chosen from present or former members of the division or from the membership of existing committees of the division, who, in consultation with the chairman of the division and the chairman of the Council, shall select an available candidate for the chairmanship for the ensuing term. The name of the candidate shall be reported to the division through its chairman and, if approved

by the division, shall be recommended to the executive board at its annual meeting for appointment, as provided in article VI, sections 1 and 2, of the articles of organization.

7. Each division of science and technology is empowered to arrange, in accordance with its special needs, for the selection of the members at large of the division, and for an executive committee, to be appointed annually, as provided in article III, section 5 (a) and (b), and article VI, section 1 (d) of the articles of organization.

Each division may designate also one of its members to act as vice chairman of the division, the term of office to be for 1 year.

8. Following the termination of any regular 3-year period of service the chairman or members of a division shall be eligible for reappointment in the same status only after a lapse of 1 year, except that the executive board may continue the service of a chairman or members for a second period of 3 years, or less, when such action is recommended by the division concerned.

9. An annual honorarium may be paid to the chairman of each division of science and technology and an annual maintenance fund shall be appropriated for the support of the work of each division of the Council. The amount of the honorarium and of the maintenance fund of each division shall be determined by the administrative committee, subject to the approval of the executive board and the Council of the National Academy of Sciences or its executive committee.

10. The maintenance fund allotted to each division shall be expended under the authority of the chairman of the division to provide for meetings of the division and its various committees, and other necessary expenses, in accordance with the regulations in force in the Council controlling financial expenditures.

11. No member of a committee constituted to administer funds entrusted to the National Research Council shall receive an honorarium or salary from such funds for his services, except in cases specifically authorized in advance by the executive board or its administrative committee, but members of such committees may be reimbursed from the funds for expenses incurred in the work of the committee.

12. Members of special committees organized within any of the divisions must be approved by the administrative committee before official notification of appointment is made by the chairman of the division.

13. Solicitation of funds for the support of projects of a division may be made only after authorization by both the executive board (or its administrative committee) and the Council of the National Academy of Sciences (or its executive committee). Such solicitation shall be conducted under the direction of the chairman of the National Research Council acting in conjunction with the chairman of the division concerned.

14. Special funds granted to the National Research Council, other than those for fellowships and grants-in-aid, must be expended in accordance with budgets previously approved by the administrative committee.

15. It shall be the duty of the chairman of each division of the Council to submit an annual report of the activities of his division to the chairman of the Council on or before June 30. Interim reports shall be made to the chairman of the Council before each stated meeting of the administrative committee.

16. Standing committees of the executive board, unless otherwise provided for, shall be appointed annually by the board at its April meeting, or, in case of need, by the administrative committee at one of its stated meetings.

17. The executive board, at its annual meeting in April, shall appoint a nominating committee of three members to prepare nominations for presentation at the next annual meeting of the board for vacancies in the committee on policies and in the list of members at large of the board, occurring at the end of the fiscal year.

18. Amendments of bylaws may be made by the executive board at any authorized meeting of the board.

19. A publication to be known as the Bulletin of the National Research Council shall be established to provide for the publication of materials originating in the work of the Council. The Bulletin shall be issued as occasion demands.

20. A series to be known as the Reprint and Circular Series of the National Research Council shall provide for the distribution of papers published or printed by or for the National Research Council.

4. ORGANIZATION OF THE NATIONAL RESEARCH COUNCIL, 1945-46

A. Officers and Executive Board

OFFICERS

Chairman.—Ross G. Harrison, Sterling professor of biology, emeritus, Yale University, New Haven, Conn.

Treasurer.—Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the Department of Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary.—George B. Darling, National Research Council, Washington, D. C.

Business manager.—George D. Meid, National Research Council, Washington, D. C.

Assistant business manager.—Bernard L. Kropp.

Assistant business manager.—Charles L. Wade.

EXECUTIVE BOARD

Presiding officer.—Frank B. Jewett, president, National Academy of Sciences, ex officio.

MEMBERS, EX OFFICIO

Chairman, treasurer and chairmen of the divisions of the National Research Council.

Executive committee of the Council of the National Academy of Sciences

Frank B. Jewett, president, National Academy of Sciences; National Defense Research Committee, 350 Fifth Avenue, New York City.

L. P. Eisenhart, vice president, National Academy of Sciences; professor of mathematics, emeritus, Princeton University; 25 Alexander Street, Princeton, N. J.

F. E. Wright, home secretary, National Academy of Sciences; petrologist, Geophysical Laboratory, Carnegie Institution of Washington; 2134 Wyoming Avenue, Washington, D. C.

Ross G. Harrison.

Jerome C. Hunsaker.

W. Mansfield Clark, professor of physiological chemistry, School of Medicine, Johns Hopkins University, Baltimore, Md.

W. M. Stanley, member, Rockefeller Institute for Medical Research, Princeton, N. J.

Committee on policies of the National Research Council

R. A. Millikan, chairman, vice-president, board of trustees, California Institute of Technology, Pasadena, Calif.

Isaiah Bowman, vice chairman, president, Johns Hopkins University, Baltimore, Md.

Vannevar Bush, president, Carnegie Institution of Washington, Washington, D. C.

Karl T. Compton, president, Massachusetts Institute of Technology, Cambridge, Mass.

James B. Conant, president, Harvard University, Cambridge, Mass.

E. G. Conklin, professor of zoology, emeritus, Princeton University, Princeton, N. J.

Frank B. Jewett, ex officio.

A. N. Richards, professor of pharmacology, and vice president in charge of medical affairs, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

W. J. Robbins, director, New York Botanical Garden, Bronx Park, New York City.

Harlow Shapley, professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

REPRESENTATIVES OF ORGANIZATIONS

President of the American Association for the Advancement of Science.—Charles F. Kettering, president, General Motors Research Corp., Detroit, Mich.

Representative of the Engineering Foundation.—A. L. Queneau, metallurgist, United States Steel Corp., 71 Broadway, New York City.

MEMBERS AT LARGE

Carl E. Guthe, director, New York State Museum, State education department, Albany, N. Y.

Walter S. Hunter, professor of psychology and director of the Psychological Laboratories, Brown University, Providence, R. I.

Zay Jeffries, vice president, General Electric Co., Pittsfield, Mass.

W. H. Taliaferro, Eliakim H. Moore distinguished service professor of parasitology and dean of the Division of Biological Sciences, University of Chicago, Chicago, Ill.

Russell M. Wilder, professor of medicine, Graduate School of Medicine, University of Minnesota, Mayo Clinic, Rochester, Minn.

F. W. Willard, president, Nassau Smelting & Refining Co., 170 Fulton Street, New York City.

ADMINISTRATIVE COMMITTEE

The chairman and treasurer of the National Research Council, the president, vice president, and home secretary of the National Academy of Sciences, and the chairmen, of the divisions of the Council; including—

Ross G. Harrison, chairman
Detlev W. Bronk
W. Mansfield Clark
L. P. Eisenhart
Frederick M. Feiker
R. F. Griggs
Jerome C. Hunsaker
Frank B. Jewett
Walter R. Miles
William W. Rubey
Lewis H. Weed
F. E. Wright

COMMITTEES

Committee on nominations.—Chairman, W. M. Stanley.

Committee on publication and library.—Chairman, George B. Darling.

Committee on exhibits (joint committee with the National Academy of Sciences).—Chairman, F. E. Wright.

Committee on patent policy.—Chairman, F. W. Willard.

TECHNICAL COMMITTEES

Advisory committee on scientific personnel.—Chairman, Henry A. Barton, director, American Institute of Physics, 57 East Fifty-fifth Street, New York City.

Advisory committee on scientific publications (joint committee with the National Academy of Sciences).—Chairman, L. P. Eisenhart.

Advisory committee to the Weather Bureau.—Chairman, R. A. Millikan.

Committee of apparatus makers and users.—Chairman, W. D. Collins, Chief, Division of Quality of Water, United States Geological Survey, Washington, D. C.

Committee on applied mathematical statistics.—Chairman, L. P. Eisenhart.

> *Subcommittee on mathematical statistics.*—Chairman, S. S. Wilks, professor of mathematics, Princeton University, Princeton, N. J.
>
> *Subcommittee on biology.*—Chairman, Sewall Wright, professor of genetics, University of Chicago, Chicago, Ill.
>
> *Subcommittee on chemistry.*—Chairman, Hugh M. Smallwood, research chemist, Eau Claire ordnance plant, United States Rubber Co., Eau Claire, Wis.
>
> *Subcommittee on medicine.*—Chairman, Lowell J. Reed, professor of biostatistics and dean of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.
>
> *Subcommittee on physics.*—Chairman, Edward U. Condon, Director, National Bureau of Standards, Washington, D. C.
>
> *Subcommittee on economics.*—Chairman, Charles F. Roos, president, Institute of Applied Econometrics, Inc., 500 Fifth Avenue, New York City.
>
> *Subcommittee on engineering.*—Chairman, W. A. Shewhart, engineer, Bell Telephone Laboratories, Inc., 463 West Street, New York City.
>
> *Subcommittee on psychology.*—Chairman, John M. Stalnaker, associate secretary, college entrance examination board, Princeton, N. J.
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> *Subcommittee on statistical quality control.*—Chairman, W. A. Shewhart.

Committee on bibliographic service in Central and South America.—Chairman, W. H. Kenerson.

Committee on bibliography of American scientific and technical books.—Chairman, John F. Fulton, Sterling professor of physiology, School of Medicine, Yale University, New Haven, Conn.

Committee on geophysical effects of detonation.—Chairman, James B. Macelwane, S. J., director, Institute of Geophysical Technology, St. Louis University, St. Louis, Mo.

Committee on geophysics (acting also as the executive committee of the American Geophysical Union, which represents the American section of the international Union of Geodesy and Geophysics).—President, L. H. Adams, director, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C.

Committee on history of the National Research Council.—Chairman, John F. Fulton.

Committee on insect control (joint committee with the National Academy of Sciences).—Chairman, M. C. Winternitz, Anthony N. Brady professor of pathology, School of Medicine, Yale University, New Haven, Conn.

Committee on neurobiology.—Chairman, Detlev W. Bronk.

Committee on problems of deafness.—Chairman, Percival Hall, president emeritus, Columbia Institution for the Deaf, Washington, D. C.

> *Subcommittee on evaluation of individual hearing aids in public schools for the hearing (a joint subcommittee with the committee on scientific aids to learning).*—Chairman, Arthur I. Gates, professor of education, Teachers College, Columbia University, New York City.
>
> *Subcommittee on construction and installation of intelligence and achievement tests.*—Chairman, Irving S. Fusfeld, dean and professor of psychology in charge of research, Gallaudet College, Washington, D. C.
>
> *Subcommittee on intelligence and achievement surveys.*—Chairman, Irving S. Fusfeld; Elise Martens.
>
> *Subcommittee on screening tests.*—Chairman, Harold Westlake, adviser, division of special education, Department of Public Instruction, Harrisburg, Pa.
>
> *Subcommittee on remedial measures for the prevention of deafness.*—Chairman, Stacy R. Guild, associate professor of otology and director of the otological research laboratory, School of Medicine, Johns Hopkins University, Baltimore, Md.
>
> *Subcommittee on effect of group hearing aids in a particular school for the deaf (a joint subcommittee with the committee on scientific aids to learning).*—Chairman, Harvey Fletcher, acoustical research director, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Committee on scientific aids to learning.—Chairman, James B. Conant.

Joint activities

Conference board of associated research councils (joint board with the American Council of Learned Societies and the Social Science Research Council).—Chairman, Ross G. Harrison.

Ethnogeographic board (joint board with the American Council of Learned Societies, the Social Science Research Council, and the Smithsonian Institution).—Chairman, Carl E. Guthe.

Committee on Latin American studies (joint committee with the American Council of Learned Societies and the Social Science Research Council).—Chairman, Lewis Hanke, Director, Hispanic Foundation, Library of Congress, Washington, D. C.

Committee on Pacific science handbook (joint committee with the American Council of Learned Societies).—Chairman, Lt. Col. John W. Coulter, Military Intelligence Service, Washington, D. C.

Committee on methods of measurement of opinion, attitudes, and consumer wants (joint committee with the Social Science Research Council).—Chairman, Samuel A. Stouffer, professor of sociology, University of Chicago, Chicago, Ill.

REPRESENTATIVES OF THE COUNCIL ON—

Editorial board of the Proceedings of the National Academy of Sciences.—W. Mansfield Clark, Luther P. Eisenhart, Frederick M. Feiker, Robert F. Griggs, Ross G. Harrison, Walter R. Miles, William W. Rubey, Lewis H. Weed; member of the editorial executive committee, Ross G. Harrison.

Board of trustees of Science Service.—C. G. Abbot, Ross G. Harrison, Hugh S. Taylor.

American Documentation Institute.—W. H. Kenerson.

Committee on National Roster of Scientific and Specialized Personnel.—J. S. Nicholas, Sterling professor of biology and fellow of Trumbull College, Yale University, New Haven, Conn.

Advisory Council on War History.—John F. Fulton, Sterling professor of physiology, School of Medicine, Yale University, New Haven, Conn.

Joint committee on indexing and abstracting in the major fields of science, of the American Library Association.—George B. Darling.

Committee Z-39 on standardization in the field of library work and documentation, of the American Standards Association.—W. H. Kenerson.

Arrangements committee for the twenty-fifth session of the International Statistical Institute.—Ross G. Harrison.

National Council on Rehabilitation.—Harold G. Wolff, associate professor of medicine, Cornell University Medical College, New York City.

Committee on Procurement of Foreign Library Materials, of the Library of Congress.—George W. Corner, director, Department of Embryology, Carnegie Institution of Washington, Baltimore, Md.

Advisory Committee on Scientific Personnel, of the Civil Service Commission.—M. H. Trytten, Director, Office of Scientific Personnel, National Research Council, Washington, D. C.

Divisions of the Council

I. DIVISION OF FOREIGN RELATIONS

Chairman, ex officio.—Detlev W. Bronk.

Vice chairman.—Harlow Shapley.

EXECUTIVE COMMITTEE

Chairman.—Detlev W. Bronk; vice chairman, Harlow Shapley; A. J. Carlson, E. C. Crittenden, John A. Fleming.

Members of the Division

EX OFFICIO

President of the National Academy of Sciences.—Frank B. Jewett, National Defense Research Committee, 350 Fifth Avenue, New York City.

Foreign Secretary of the National Academy of Sciences.—Detlev W. Bronk, professor of biophysics, and director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Chairman of the National Research Council and the chairmen of all divisions of the Council.

REPRESENTATIVES OF—

American Association for the Advancement of Science

F. R. Moulton, permanent secretary, American Association for the Advancement of Science, Smithsonian Institution, Washington, D. C.

American Academy of Arts and Sciences

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American Philosophical Society

Detlev W. Bronk.

Department of the Navy

Rear Adm. J. A. Furer, coordinator of research and development, Navy Department, Washington, D. C.

Department of War

Brig. Gen. Charles C. Hillman, commanding general, Letterman General Hospital, San Francisco, Calif.

Pan American Union

L. S. Rowe, director general, Pan American Union, Washington D. C.

International Astronomical Union

Harlow Shapley, ex officio, chairman, American section, International Astronomical Union; professor of astronomy and director, Harvard College Observatory, Harvard University, Cambridge, Mass.

International Union of Biological Sciences

Elmer D. Merrill, president of the International Union; Arnold professor of botany, administrator of botanical collections, director of the Arnold Arboretum, supervisor of the Bussey Institution, Harvard University, Jamaica Plain, Mass.

International Union of Geodesy and Geophysics

L. H. Adams, president, American Geophysical Union; director, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

J. E. Church, president, section of hydrology, American Geophysical Union; meteorologist, Nevada State Agricultural Experiment Station, Reno, Nev.

John A. Fleming, general secretary, American Geophysical Union; president, Association of Terrestrial Magnetism and Electricity, International Union of Geodesy and Geophysics; director, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington, D. C.

N. H. Heck, president, Association of Seismology, International Union of Geodesy and Geophysics; Assistant to the Director, United States Coast and Geodetic Survey, Washington, D. C.

H. U. Sverdrup, director, Scripps Institution of Oceanography, La Jolla, Calif.

Thomas G. Thompson, professor of chemistry and director of the Oceanographic Laboratories, University of Washington, Seattle, Wash.

International Union of Chemistry

Marston T. Bogert, president of the International Union of Chemistry; professor of chemistry, emeritus, Columbia University, New York City.

International Union of Pure and Applied Physics

L. P. Eisenhart, ex officio, chairman, Division of Physical Sciences, National Research Council; professor of mathematics, emeritus, Princeton University, Princeton, N. J.

International Scientific Radio Union

J. H. Dellinger, ex officio, chairman, American section of the International Scientific Radio Union; Chief of the Radio Section, National Bureau of Standards, Washington, D. C.

International Geographical Union

John K. Wright, ex officio, chairman, National Committee of the United States, International Geographical Union; director, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

International Bureau of Weights and Measures

E. U. Condon, Director, National Bureau of Standards, Washington, D. C.

International Electrotechnical Commission

E. C. Crittenden, Chief, Electrical Division, and Assistant Director, National Bureau of Standards, Washington, D. C.

International Commission on Illumination

E. C. Crittenden, Chief, Electrical Division, and Assistant Director, National Bureau of Standards, Washington, D. C.

MEMBERS AT LARGE

P. G. Agnew, secretary, American Standards Association, 70 West Forty-fifth Street, New York City.

A. J. Carlson, professor of physiology, emeritus, Univeristy of Chicago, Chicago, Ill.

L. C. Dunn, professor of zoology, Columbia University, New York City.

Richard Hartshorne, professor of geography, University of Wisconsin, Madison, Wis.

Herbert S. Langfeld, chairman, committee on international cooperation in psychology; Stuart professor of psychology, Princeton University, Princeton, N. J.

Waldo G. Leland, director, American Council of Learned Societies, 1219 Sixteenth Street NW., Washington, D. C.

Howard P. Robertson, professor of mathematical physics, Princeton University, Princeton, N. J.

Harlow Shapley, vice chairman of the division; professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

Walter T. Swingle, collaborator, United States Bureau of Plant Industry, Washington, D. C.

Alexander Wetmore, Secretary, Smithsonian Institution, Washington, D. C.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Committee on Pacific investigations.—Chairman, Herbert E. Gregory.

Continuation committee on problems of restoring international scientific and scholarly cooperation.—Chairman, Waldo G. Leland.

COMMITTEES COOPERATING WITH INTERNATIONAL COMMITTEES OF THE PACIFIC SCIENCE ASSOCIATION

American national committee on oceanography of the Pacific.—Chairman, Thomas G. Thompson.

American national committee on land classification and utilization in the Pacific.—Chairman, Carl O. Sauer, professor of geography, University of California, Berkeley, Calif.

American committee on Pacific seismology.—Chairman, James B. Macelwane, S. J., director, Institute of Geophysical Technology, St. Louis University, St. Louis, Mo.

REPRESENTATIVE OF THE NATIONAL RESEARCH COUNCIL ON—

Council of the Pacific Science Association.—Herbert E. Gregory.

II. DIVISION OF PHYSICAL SCIENCES

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Vice chairman.—Henry A. Barton.

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Edwin P. Hubble, astronomer, Mount Wilson Observatory, Carnegie Institution of Washington, Pasadena, Calif.

American Physical Society

Edward L. Bowles, Office of the Secretary of War, Washington, D. C.

F. G. Brickwedde, Chief, Cryogenic Laboratory, National Bureau of Standards, Washington, D. C.

Charles C. Lauritsen, professor of physics, California Institute of Technology, Pasadena, Calif.

William W. Watson, professor of physics, Yale University, New Haven, Conn.

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Gustav A. Hedlund, professor of mathematics, University of Virginia, University, Va.

Saunders MacLane, associate professor of mathematics, Harvard University, Cambridge, Mass.

Marston Morse, professor of mathematics, Institute for Advanced Study, Princeton, N. J.

Oswald Veblen, professor of mathematics, Institute for Advanced Study, Princeton, N. J.

Warren Weaver, director for the natural sciences, Rockefeller Foundation, 49 West Forty-ninth Street, New York City.

Institute of Mathematical Statistics

Walter Bartky, professor of applied mathematics and dean of physical sciences, University of Chicago, Chicago, Ill.

Mathematical Association of America

Rudolph E. Langer, professor of mathematics, University of Wisconsin, Madison, Wis.

Optical Society of America

K. S. Gibson, Chief, Photometry and Colorimetry Section, National Bureau of Standards, Washington, D. C.

Deane B. Judd, senior physicist, National Bureau of Standards, Washington, D. C.

Acoustical Society of America

Floyd A. Firestone, consulting physicist, 3318 Fessenden Street NW., Washington, D. C.

E. C. Wente, research physicist, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

American Institute of Physics

Henry A. Barton, vice chairman of the division; director, American Institute of Physics, 57 East Fifty-fifth Street, New York City.

REPRESENTATIVE OF THE GOVERNMENT DESIGNATED BY THE PRESIDENT OF THE UNITED STATES

Maj. Gen. Harry C. Ingles, Chief Signal Officer, War Department, Washington, D. C.

MEMBERS AT LARGE

Raymond C. Archibald, professor of mathematics, emeritus, Brown University, Providence, R. I.

Oliver E. Buckley, president, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Homer L. Dodge, president, Norwich University, Northfield, Vt.

Lee A. DuBridge, professor of physics and dean of the faculty of arts and sciences, University of Rochester, Rochester, N. Y.

E. Newton Harvey, Henry Fairfield Osborn professor of physiology, Princeton University, Princeton, N. J.

W. A. Shewhart, engineer, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

EXECUTIVE COMMITTEES OF AMERICAN SECTIONS OF INTERNATIONAL UNIONS

International Astronomical Union.—Chairman, Harlow Shapley, professor of astronomy and director of the observatory, Harvard University, Cambridge, Mass.

International Union of Pure and Applied Physics.—The Division of Physical Sciences acts as the American section of the International Union of Pure and Applied Physics.

International Scientific Radio Union.—Chairman, J. H. Dellinger, Chief of the Radio Section, National Bureau of Standards, Washington, D. C.

Committee on problems of radio interference.—Chairman, H. H. Beverage, chief research engineer, RCA Communications, Inc., 66 Broad Street, New York City.

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Committee on revolving fund for the publication of mathematical books.—Chairman, Solomon Lefschetz, professor of mathematics, Princeton University, Princeton, N. J.

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Subcommittee on arithmetical tables: Mathematical constants.—Chairman, H. T. Davis, professor of mathematical statistics, Northwestern University, Evanston, Ill.

Subcommittee on theory of numbers.—Chairman, D. H. Lehmer, assistant professor of mathematics, University of California, Berkeley, Calif.

Subcommittee on higher algebra.—Chairman, D. H. Lehmer.

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Subcommittee on higher mathematical functions: Integral tables.—H. Bateman, professor of mathematics, physics, and aeronautics, California Institute of Technology, Pasadena, Calif.

Subcommittee on life insurance.—Chairman, James S. Elston, assistant actuary, Travelers Insurance Co., Hartford, Conn.

Subcommittee on astronomy.—Chairman, W. J. Eckert, Director, Nautical Almanac Office, United States Naval Observatory, Washington, D. C.

Subcommittee on calculating machines and mechanical computation.—Chairman, L. J. Comrie, superintendent, Scientific Computing Service, Ltd., 23 Bedford Square, London, England.

Committee on standards of radioactivity.—Chairman, Robley D. Evans, associate professor of physics, Massachusetts Institute of Technology, Cambridge, Mass.

III. ENGINEERING AND INDUSTRIAL RESEARCH

Chairman.—Frederick M. Feiker.
Vice chairman.—Hugh L. Dryden.

EXECUTIVE COMMITTEE

Chairman.—Frederick M. Feiker.
Vice chairman.—Hugh L. Dryden.
Lyman J. Briggs, William B. Kouwenhoven, Thomas H. MacDonald.

MEMBERS OF THE DIVISION

REPRESENTATIVES OF ENGINEERING SECTION OF THE NATIONAL ACADEMY OF SCIENCES

Lyman J. Briggs, 3208 Newark Street NW., Washington, D. C.

Oliver E. Buckley, president, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Copyr

F. G. Cottrell, 1557 Waverley Street, Palo Alto, Calif.

George O. Curme, Jr., director of research, Union Carbide & Carbon Corp., 30 East Forty-second Street, New York City.

William Hovgaard, professor of naval construction, emeritus, Massachusetts Institute of Technology, Hotel Margaret, Brooklyn, N. Y.

George W. Lewis, Director of Research, National Advisory Committee for Aeronautics, Washington, D. C.

Alfred L. Loomis, director, Loomis Laboratory, Tuxedo Park, N. Y.

Paul D. Merica, vice president, International Nickel Co., Inc., Bayonne, N. J.

REPRESENTATIVES OF NATIONAL ENGINEERING SOCIETIES

Carl Breer, executive engineer, Chrysler Corp., Detroit, Mich. (Society of Automotive Engineers).

Hugh L. Dryden, vice chairman of the division; Chief, Mechanics and Sound Division, National Bureau of Standards, Washington, D. C. (Institute of the Aeronautical Sciences).

William B. Kouwenhoven, dean of the School of Engineering, Johns Hopkins University, Baltimore, Md. (American Institute of Electrical Engineers).

Robert J. Moore, manager, sales development laboratories, Bakelite Corp., Bloomfield, N. J. (American Society for Testing Materials).

William Spraragen, executive secretary, Welding Research Council, 33 West Thirty-ninth Street, New York City (American Welding Society).

Heath Steele, vice president, American Metals Co., Ltd., 61 Broadway, New York City (American Institute of Mining and Metallurgical Engineers).

Frederick E. Terman, professor of electrical engineering, Stanford University, Stanford University, Calif. (Institute of Radio Engineers).

Albert E. White, professor of metallurgical engineering and director of engineering research, University of Michigan, Ann Arbor, Mich. (American Society of Mechanical Engineers).

Abel Wolman, professor of sanitary engineering, Johns Hopkins University, Baltimore, Md. (American Society of Civil Engineers).

REPRESENTATIVE OF THE GOVERNMENT, DESIGNATED BY THE PRESIDENT OF THE UNITED STATES

Thomas H. MacDonald, Chief, Public Roads Administration, Federal Works Agency, Washington, D. C.

MEMBERS AT LARGE

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William D. Fales, dean of the Textile School, Rhode Island School of Design, Providence, R. I.

Frederick M. Feiker, chairman of the division; professor of engineering administration and dean of the School of Engineering, George Washington University, Washington, D. C.

Louis Thoms, General Motors Corp., Detroit, Mich.

Harold Vagtborg, director, Midwest Research Institute, Kansas City, Mo.

L. W. Wallace, vice president, Trundle Engineering Co., Cleveland, Ohio.

Clyde E. Williams, director, Battelle Memorial Institute, Columbus, Ohio.

Willis R. Woolrich, professor of mechanical engineering, dean of the College of Engineering, and director of the Bureau of Engineering Research, University of Texas, Austin, Tex.

Harold K. Work, manager, research and development, Jones & Laughlin Steel Corp., Pittsburgh, Pa.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees and boards of the division.

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Conference on electrical insulation.—Chairman, W. F. Davidson, director of research, Consolidated Edison Co., 4 Irving Place, New York City.

> *Committee on physics.*—Chairman, A. von Hippel, associate professor of electrical engineering, Massachusetts Institute of Technology, Cambridge, Mass.
>
> *Committee on chemistry.*—Chairman, J. D. Piper, research department, Detroit Edison Co., Detroit, Mich.

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Committee on fatigue in industry.—Chairman, F. W. Willard, president, Nassau Smelting & Refining Co., 170 Fulton Street, New York City.

Committee on heat transmission.—Chairman, Willis H. Carrier.

Board for prosthetic and sensory devices (joint board with the Division of Medical Sciences).—Chairman, Paul E. Klopsteg, director of research, Technological Institute, Northwestern University, Evanston, Ill.

Committee on prosthetic devices.—Chairman, Paul E. Klopsteg.

Committee on sensory devices.—Chairman, George W. Corner, director, department of embryology, Carnegie Institution of Washington, Baltimore, Md.

Committee on quartermaster problems.—Chairman, L. W. Bass, research director, Air Reduction Co., New York City.

Advisory committee on metals and minerals.—Chairman, Clyde E. Williams, director, Battelle Memorial Institute, Columbus, Ohio.

Ferrous minerals and ferroalloys group.—Chairman, Gilbert E. Seil, technical consultant, Day & Zimmerman, Philadelphia, Pa.

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Nonmetallic minerals group.—Chairman, R. P. Heuer, vice president in charge of research, General Refractories Co., Philadelphia, Pa.

Tin smelting and reclamation group.—Chairman, F. W. Willard, president, Nassau Smelting & Refining Co., 170 Fulton Street, New York City.

Alumina group.—Chairman, John D. Sullivan, Battelle Memorial Institute, Columbus, Ohio.

War metallurgy committee.—Chairman, Clyde E. Williams.

REPRESENTATIVES OF THE DIVISION ON—

American Coordinating Committee on Corrosion

F. N. Speller, National Tube Co., Pittsburgh, Pa.

Scott Ewing, Bureau of Ships, Navy Department, Washington, D. C.

Metallurgical Advisory Committee to the National Bureau of Standards

John Johnston, director of research, United States Steel Corp., Kearny, N. J.

H. Foster Bain (alternate), consulting geologist, Hartsdale, N. Y.

Committee C–42 on Definitions and Electrical Terms, American Standards Association

John B. Whitehead, professor of electrical engineering, emeritus, Johns Hopkins University, Baltimore, Md.

Subcommittee 5 on Symbols for Heat and Thermodynamics, American Standards Association

Frank O. Ellenwood, John Edson Sweet professor of engineering, Cornell University, Ithaca, N. Y.

D. S. Jacobus, 93 Harrison Avenue, Montclair, N. J.

Highway Research Board

Chairman.—Stanton Walker, director of engineering, National Sand and Gravel Association, Washington, D. C.

Committees

I. *Department of economics, finance, and administration.*—Chairman, H. S. Fairbank, Deputy Commissioner, Public Roads Administration, Washington, D. C.

II. *Department of highway design.*—Chairman, C. N. Conner, Public Roads Administration, Washington, D. C.

III. *Department of materials and construction.*—Chairman, C. H. Scholer, professor of applied mechanics, Kansas State College, Manhattan, Kans.

IV. *Department of maintenance.*—Chairman, W. H. Root, maintenance engineer, Iowa State Highway Commission, Ames, Iowa.

V. *Department of traffic and operations.*—Chairman, Wilbur S. Smith, associate director, bureau for highway traffic, Yale University, New Haven, Conn.

VI. *Department of soils investigations.*—Chairman, C. A. Hogentogler, senior highway engineer, Public Roads Administration, Washington, D. C.

Committee on highway lighting research.—Chairman, Burton W. Marsh, traffic engineer and director of safety, American Automobile Association, Washington, D. C.

Committee on methods of testing the load-bearing capacity of soils and pavements.—Chairman, K. B. Woods, assistant professor of highway engineering, Purdue University, Lafayette, Ind.

IV. DIVISION OF CHEMISTRY AND CHEMICAL TECHNOLOGY

Chairman.—W. Mansfield Clark.

Vice chairman.—Harris M. Chadwell.

EXECUTIVE COMMITTEE

Chairman.—W. Mansfield Clark.

Vice chairman.—Harris M. Chadwell; James H. Critchett, George W. Morey, Robert C. Swain.

MEMBERS OF THE DIVISION

W. Mansfield Clark, chairman of the division; professor of physiological chemistry, School of Medicine, Johns Hopkins University, Baltimore, Md.

REPRESENTATIVES OF SOCIETIES

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Harris M. Chadwell, vice chairman of the division; head of the Department of Chemistry and Chemical Engineering, Tufts College, Medford, Mass.

Hans T. Clarke, professor of biochemistry, College of Physicians and Surgeons, Columbia University, New York City.

Arthur C. Cope, professor of chemistry, Massachusetts Institute of Technology, Cambridge, Mass.

John R. Johnson, professor of organic chemistry, Cornell University, Ithaca, N. Y.

Walter J. Murphy, editor, Industrial and Engineering Chemistry, 1155 Sixteenth Street NW., Washington, D. C.

Electrochemical Society

James H. Critchett, vice president, Electro Metallurgical Co.; director of research, Union Carbide & Carbon Corp., 30 East Forty-second Street, New York City.

American Institute of Chemical Engineers

Joseph C. Elgin, professor of chemical engineering, Princeton University, Princeton, N. J.

American Ceramic Society

George W. Morey, physical chemist, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

American Society for X-ray and Electron Diffraction

Maurice L. Huggins, research chemist, Eastman Kodak Co., Rochester, N. Y.

International Union of Chemistry

Marston T. Bogert, ex officio, president of the International Union of Chemistry; professor of chemistry, emeritus, Columbia University, New York City.

REPRESENTATIVES OF THE GOVERNMENT DESIGNATED BY THE PRESIDENT OF THE UNITED STATES

Brig. Gen. Gladeon M. Barnes, Office of the Chief of Ordnance, War Department, Washington, D. C.

Capt. R. R. Burke, Bureau of Ordnance, Navy Department, Washington, D. C.

Maj Gen. William N. Porter, Chief, Chemical Warfare Service, War Department, Washington, D. C.

MEMBERS AT LARGE

Walter C. Russell, professor of agricultural biochemistry, Rutgers University, New Brunswick, N. J.

John N. Street, director of chemical and physical research, Firestone Tire & Rubber Co., Akron, Ohio.

Robert C. Swain, director of research, American Cyanamid Co., 30 Rockefeller Plaza, New York City.

COMMITTEES

The Chairman of the division is, ex officio, a member of all committees of the division.

American section, International Union of Chemistry.—The Division of Chemistry and Chemical Technology acts as the American section of the International Union of Chemistry.

Committee on fellowships.—Chairman, W. Mansfield Clark.

Committee on Annual Tables of Constants and Numerical Data.—Chairman, Hugh S. Taylor, David B. Jones professor of chemistry, Princeton University, Princeton, N. J.

Committee on fundamental physical constants (joint committee with the Division of Physical Sciences).—Chairman, Lyman J. Briggs, 3208 Newark Street NW., Washington, D. C.

Committee on low-temperature scales.—Chairman, F. G. Brickwedde, chief, Cryogenic Laboratory, National Bureau of Standards, Washington, D. C.

Committee on thermal data for chemical industries.—Chairman, F. G. Brickwedde.

Committee on organic chemical nomenclature.—Chairman, Austin M. Patterson, professor of chemistry, emeritus, Antioch College, Yellow Springs, Ohio.

Committee on biochemical nomenclature (to cooperate with a similar committee of the International Union of Chemistry).—Chairman, J. Murray Luck, associate professor of biochemistry, Stanford University, Stanford University, Calif.

Committee on standardization of symbols and abbreviations.—Chairman, Charles A. Marlies, assistant professor of chemical engineering, College of the City of New York, New York City.

Committee on catalysis.—Chairman, R. E. Burk, plastics department, E. I. du Pont de Nemours & Co., Wilmington, Del.

Committee on cellulose and allied substances.—Chairman, Harry F. Lewis, dean, Institute of Paper Chemistry, Appleton, Wis.

Committee on the chemistry of proteins.—Chairman, H. B. Vickery, biochemist in charge of laboratories, Connecticut Agricultural Experiment Station, New Haven, Conn.

Panel on the synthesis of antimalarial drugs (cooperating with the committee on medical research of OSRD, the Board for the Coordination of Malarial Studies, and the Division of Medical Sciences).—Chairman, Carl S. Marvel, professor of organic chemistry, University of Illinois, Urbana, Ill.

Panel on the biochemistry of antimalarials (cooperating with the committee on medical research of OSRD, the Board for the Coordination of Malarial Studies, and the Division of Medical Sciences).

Survey of antimalarial drugs (cooperating with the committee on medical research of OSRD, the Board for the Coordination of Malarial Studies, and the Division of Medical Sciences).—F. Y. Wiselogle, in charge.

Conference on the synthesis of cortical hormones.—Chairman, Hans T. Clarke, professor of biochemistry, College of Physicians and Surgeons, Columbia University, New York City

V. DIVISION OF GEOLOGY AND GEOGRAPHY

Chairman.—William W. Rubey.
Vice chairman.—Lester E. Klimm.

EXECUTIVE COMMITTEE

Chairman.—William W. Rubey.
Vice chairman.—Lester E. Klimm, Charles H. Behre, Jr., Monroe G. Cheney, Otto E. Guthe, Marshall Kay.

MEMBERS OF THE DIVISION

REPRESENTATIVES OF SOCIETIES

Geological Society of America

Marland Billings, associate professor of geology, Harvard University, Cambridge, Mass.

Marshall Kay, professor of geology, Columbus University, New York City.

Mineralogical Society of America

J. F. Schairer, physical chemist, geophysical laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

Paleontological Society

L. W. Stephenson, geologist, United States Geological Survey, Washington, D. C.

Association of American Geographers

Otto E. Guthe, Assistant Chief, Division of Geography and Cartography, Department of State, Washington, D. C.

Glenn T. Trewartha, professor of geography, University of Wisconsin, Madison, Wis.

American Geographical Society

Raye R. Platt, research associate, department of Hispanic-American research, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

Society of Economic Geologists

Charles H. Behre, Jr., professor of geology, Columbia University, New York City.

American Ceramic Society

L. H. Adams, director, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton Street, Washington, D. C.

American Geophysical Union

John A. Fleming, director, department of terrestrial magnetism, Carnegie Institution of Washington, 5241 Broad Branch Road, Washington, D. C.

American Association of Petroleum Geologists

Monroe G. Cheney, consulting geologist, and president of the Anzac Oil Corp., Coleman, Tex.

REPRESENTATIVE OF THE GOVERNMENT DESIGNATED BY THE PRESIDENT OF THE UNITED STATES

W. E. Wrather, Director, United States Geological Survey, Washington, D. C.

MEMBERS AT LARGE

W. Storrs Cole, professor of geology, Cornell University, Ithaca, N. Y.

Lester E. Klimm, associate professor of geography, University of Pennsylvania, Philadelphia, Pa.

William W. Rubey, staff geologist, United States Geological Survey, Washington, D. C.

COMMITTEES

The chairman of the division is ex officio a member of all committees of the division.

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National committee of the United States, International Geographical Union.—Chairman, John K. Wright, director, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

Committee on fellowships.—Chairman, William W. Rubey.

Committee on cartographic techniques.—Chairman, Arthur H. Robinson, assistant professor of geography, University of Wisconsin, Madison, Wis.

Committee on map sketching from aerial photographs.—Chairman, O. M. Miller, head of the department of mathematical geography, American Geographical Society, Broadway at One Hundred and Fifty-sixth Street, New York City.

Committee on classified maps and data.—Chairman, Robert S. Platt, professor of geography, University of Chicago, Chicago, Ill.

Committee on advising prospective geology students.—Chairman, Charles H. Behre, Jr.

Subcommittee on advising precollege and college students.—Chairman, W. T. Thom, Jr., Blair professor of geology, Princeton University, Princeton, N. J.

Committee on authors' abstracts.—Chairman, Marcus I. Goldman, geologist, United States Geological Survey, Washington, D. C.

Committee on common problems of genetics, paleontology, and systematics (joint committee with the Division of Biology and Agriculture.—Chairman, George Gaylord Simpson, curator of fossil mammals, American Museum of Natural History, New York City.

Committee of cryptovolcanic structures.—Chairman, Charles W. Wilson, Jr., associate professor of geology, Vanderbilt University, Nashville, Tenn.

Committee on the deformation of the Ross Shelf ice.—Chairman, Walter H. Bucher.

Committee on density currents.—Chairman, Herbert N. Eaton, Chief, Hydraulic Laboratory Section, National Bureau of Standards, Washington, D. C.

Committee on experimental deformation of rocks.—Chairman, Eleanora B. Knopf, geologist, United States Geological Survey, Yale University, New Haven, Conn.

Committee on geological personnel.—Chairman, W. B. Heroy, Director, Petroleum Reserves Division, Petroleum Administration for War, Washington, D. C.

Committee on the geology of ceramic raw materials.—Chairman, Herbert Insley, professor of petrography, Pennsylvania State College, State College, Pa.

Committee on glacial map of North America.—Chairman, R. F. Flint, associate professor of geology, Yale University, New Haven, Conn.

Committee on marine ecology as related to paleontology.—Chairman, Harry S. Ladd, senior geologist, United States Geological Survey, Washington, D. C.

Committee on the measurement of geological time.—Chairman, Alfred C. Lane, emeritus professor of geology and mineralogy, Tufts College; 22 Arlington Street, Cambridge, Mass.

Committee on meteorites.—Chairman, W. F. Foshag, curator of mineralogy, United States National Museum, Washington, D. C.

Committee on micropaleontology.—Chairman, Joseph A. Cushman, director, Cushman Laboratory for Foraminiferal Research, Sharon, Mass.

Committee on paleobotany.—Chairman, Erling Dorf, associate professor of geology and curator of paleobotany, Princeton University, Princeton, N. J.

Committee on sedimentation.—Chairman, Parker D. Trask, professor of geology, University of Wisconsin, Madison, Wis.

Committee on stratigraphy.—Chairman, Carl O. Dunbar, professor of paleontology and stratigraphy, and director, Peabody Museum of Natural History, Yale University, New Haven, Conn.

United States committee for the study of Paricutin Volcano.—Chairman, Richard E. Fuller, research professor of geology, University of Washington, Seattle, Wash.

Committee on tectonics.—Chairman, Chester R. Longwell, Henry Barnard Davis professor of geology, Yale University, New Haven, Conn.

Committee on Asiatic geography.—Chairman, George B. Cressey, professor of geography, Syracuse University, Syracuse, N. Y.

Committee on cooperation with the Bureau of the Census.—Chairman, Guy-Harold Smith, professor of geography, Ohio State University, Columbus, Ohio.

Committee on cooperation with the Soil Survey.—Chairman, W. Elmer Ekblaw, professor of geography, Clark University, Worcester, Mass.

Committee on geographic research.—Chairman, Lester E. Klimm.

Subcommittee on census of professional geographers.—Chairman, W. L. G. Joerg, Chief of the Division of Maps and Charts, National Archives, Washington, D. C.

Subcommittee on geographical research in New York State.—Chairman, Eric H. Faigle, associate professor of geography, Syracuse University, Syracuse, N. Y.

Committee on Latin American Studies.—Chairman, Preston E. James, professor of geography, Syracuse University, Syracuse, N. Y.

Committee on manpower in the geographic profession.—Chairman, Otto E. Guthe.

Committee on southern studies.—Chairman, W. Elmer Ekblaw.

Committee on training and standards in the geographic profession.—Chairman, Richard Hartshorne, professor of geography, University of Wisconsin, Madison, Wis.

REPRESENTATIVES OF THE DIVISION ON—

Committee D–5 on coal and coke, of the American Society for Testing Materials.—Taisia Stadnichenko, associate geologist, United States Geological Survey, Washington, D. C.

United States advisory committee of American cartography, of the Pan American Institute of Geography and History.—Robert S. Platt.

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Lewis H. Weed, chairman of the division, professor of anatomy and director of the School of Medicine, Johns Hopkins University, Baltimore, Md.

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American Academy of Pediatrics

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American Academy of Tropical Medicine

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American Association of Anatomists

George L. Streeter, research associate, Carnegie Institution of Washington, Baltimore, Md.

American Association of Pathologists and Bacteriologists

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American College of Physicians

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American College of Surgeons

Frederick A. Coller, professor of surgery, School of Medicine, University of Michigan, Ann Arbor, Mich.

American Dental Association

H. Trendley Dean, Senior dental surgeon, National Institute of Health, Bethesda, Md.

American Medical Association

Ernest E. Irons, professor of medicine, College of Medicine, University of Illinois, Chicago, Ill.

American Neurological Association

S. Bernard Wortis, professor of psychiatry, New York University College of Medicine, New York City.

American Physiological Society

H. C. Bazett, professor of physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

American Psychiatric Association

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American Roentgen Ray Society

Barton R. Young, associate professor of radiology, Temple University, Philadelphia, Pa.

American Society of Biological Chemists

Howard B. Lewis, professor of biological chemistry, chairman of the Department of Biological Chemistry, and director of the College of Pharmacy, University of Michigan, Ann Arbor, Mich.

American Society for Clinical Investigation

Charles L. Brown, professor of medicine and head of the Department of Medicine, Temple University, Philadelphia, Pa.

American Society for Experimental Pathology

Balduin Lucké, professor of pathology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

American Society for Pharmacology and Experimental Therapeutics

E. M. K. Geiling, professor of pharmacology, University of Chicago, Chicago, Ill.

American Society of Tropical Medicine

Henry E. Meleney, Herman M. Biggs professor of preventive medicine, College of Medicine, New York University, New York City.

American Surgical Association

Harry H. Kerr, 1744 N. Street NW., Washington, D. C.

American Veterinary Medical Association

William H. Feldman, associate professor of comparative pathology, Mayo Foundation, Rochester, Minn.

Association of American Physicians

Joseph Earle Moore, associate professor of medicine, School of Medicine, Johns Hopkins University, Baltimore, Md.

Society of American Bacteriologists

N. Paul Hudson, professor of bacteriology, College of Medicine, Ohio State University, Columbus, Ohio.

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Capt. George B. Dowling, Medical Corps, United States Navy, Research Division, Bureau of Medicine and Surgery, Washington, D. C.

Rolla E. Dyer, Director, National Institute of Health, United States Public Health Service, Bethesda, Md.

Brig. Gen. James S. Simmons, Medical Corps, United States Army, Chief, Preventative Medicine Service, Office of the Surgeon General, Washington, D. C.

MEMBERS AT LARGE

George B. Darling, vice chairman of the division; National Research Council, Washington, D. C.

Wilburt C. Davison, dean, School of Medicine, Duke University, Durham, N. C.

John F. Fulton, Sterling professor of physiology, School of Medicine, Yale University, New Haven, Conn.

A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard Medical School, Boston, Mass.

Charles B. Huggins, professor or surgery (urology), School of Medicine, University of Chicago, Chicago, Ill.

Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

Esmond R. Long, professor of pathology, School of Medicine, and director of laboratories, Henry Phipps Institute, University of Pennsylvania, Philadelphia, Pa.

Howard C. Naffziner, professor of surgery, School of Medicine, University of California, San Francisco, Calif.

O. H. Perry Pepper, professor of medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

William S. Tillett, professor of medicine, College of Medicine, New York University, New York City.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Committee on American registry of pathology.—Chairman, Howard T. Karsner.

Advisory committee on drug addiction.—Chairman, William Charles White, 1914 Connecticut Avenue, Washington, D. C.

Committee on research in endocrinology.—Chairman, C. N. H. Long, Sterling professor of physiological chemistry, School of Medicine, Yale University, New Haven, Conn.

Committee on growth.—Chairman, C. P. Rhoads, medical director, Memorial Hospital for the Treatment of Cancer and Allied Diseases, New York City.

Division of Biology.—Chairman, Walter E. Heston senior geneticist, National Cancer Institute, Bethesda, Md.

Panel on botany.—Chairman, Orland E. White, professor of agriculture and biology, Blandy experimental farm, University of Virginia, Charlottesville, Va.

Panel on cellular biology.—Chairman, George L. Streeter, research associate, Department of embryology, Carnegie Institute of Washington, Baltimore, Md.

Panel on genetics.—Chairman, Laurence H. Snyder, professor of zoology and medicine, Ohio State University, Columbus, Ohio.

Panel on laboratory genetics.—Chairman, Walter E. Heston.

Panel on milk factor.—Chairman, John J. Bittner, director, division of cancer biology, School of Medicine, University of Minnesota, Minneapolis, Minn.

Panel on mutations.—Chairman, L. J. Stadler, principal geneticist, United States Department of Agriculture, University of Missouri, Columbia, Mo.

Panel on virus.—Chairman, George P. Berry, professor of bacteriology and associate professor of medicine, School of Medicine and Dentistry, University of Rochester, Rochester, N. Y.

Division of Chemistry.—Chairman, Eric G. Ball, associate professor of physiological chemistry, Harvard Medical School, Boston, Mass.

Panel on cytochemistry.—Chairman, Francis O. Schmitt, professor of biology, Massachusetts Institute of Technology, Cambridge, Mass.

Panel on enzymes.—Chairman, Eric G. Ball.

Panel on experimental endocrine physiology.—Chairman, C. N. H. Long, Sterling professor of physiological chemistry, School of Medicine, Yale University, New Haven, Conn.

Panel on nutrition.—Chairman, C. G. King, scientific director, National Nutrition Foundation, Chrysler Building, New York City.

Panel on proteins.—Chairman, R. Keith Cannan, professor of chemistry, School of Medicine, New York University, New York City.

Panel of synthesis and metabolism of steroids.—Chairman, Thomas F. Gallagher, associate professor of biochemistry, University of Chicago, Chicago, Ill.

Division of clinical investigations.—Chairman, William B. Castle, professor of medicine, Harvard Medical School, Boston, Mass.

Panel on clinical investigation in endocrinology.—Chairman, Allan Kenyon, professor of medicine, University of Chicago, Chicago, Ill.

Panel on clinical physiology of the blood and blood-forming organs.—Chairman, William B. Castle.

Panel on clinical physiology of the female reproductive tract.—Chairman, George V. Smith, assistant professor of gynecology, Harvard Medical School, Boston, Mass.

Division of Physics.—Chairman, J. W. Beams, professor of physics, University of Virginia, Charlottesville, Va.

Panel on isotopes.—Chairman, D. Wright Wilson, professor of physiological chemistry, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Panel on physics.—Chairman, J. W. Beams.

Panel on radiology.—Chairman, Andrew H. Dowdy, associate professor of radiology, University of Rochester, Rochester, N. Y.

Committee on medical problems of civil aviation.—Chairman, E. Cowles Andrus, associate professor of medicine, School of Medicine, Johns Hopkins University, Baltimore, Md.

Committee for research in problems of sex.—Chairman, Robert M. Yerkes, professor of psychobiology, emeritus, Yale University, New Haven, Conn.

ADVISORY COMMITTEES TO THE SURGEONS GENERAL OF THE WAR AND NAVY DEPARTMENTS AND THE UNITED STATES PUBLIC HEALTH SERVICE

1. *Committee on aviation medicine.*—Chairman, Eugene F. DuBois, professor of physiology, Cornell University Medical College, New York City.

Advisory commission A to the committee on aviation medicine.—Chairman, John K. Lewis, associate professor of medicine, School of Medicine, Stanford University, San Francisco, Calif.

Subcommittee on acceleration.—Chairman, Eugene M. Landis, professor of physiology, Harvard Medical School, Boston, Mass.

Subcommittee on clothing.—Chairman, L. H. Newburgh, professor of clinical investigation, School of Medicine, University of Michigan, Ann Arbor, Mich.

Subcommittee on decompression sickness.—Chairman, John F. Fulton.

Subcommittee on motion sickness.—Chairman, Philip Bard, professor of physiology, School of Medicine, Johns Hopkins University, Baltimore, Md.

Subcommittee on oxygen and anoxia.—Chairman, Detlev W. Bronk, professor of biophysics, and director of the Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on visual problems.—Chairman, Detlev W. Bronk.

2. *Committee on chemotherapeutic and other agents.*—Chairman, Chester S. Keefer, Wade professor of medicine, School of Medicine, Boston University, Boston University, Boston, Mass.

3. *Committee on convalescence and rehabilitation.*—Chairman, William S. Tillett.

4. *Committee on drugs and medical supplies.*—(Main committee and two subcommittees discontinued.)

Subcommittee on medical food requirements.—Chairman, William D. Stroud, professor of cardiology, Graduate School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on pharmacy.—Chairman, Isaac Starr, professor of therapeutics, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

5. *Committee on industrial medicine.*—Chairman, Clarence D. Selby, medical director, General Motors Corp., Detroit, Mich.

Subcommittee on armored vehicles.—Chairman, George M. Smith, research associate in anatomy, School of Medicine, Yale University, New Haven, Conn.

6. *Committee on medicine.*—Chairman, O. H. Perry Pepper.

Subcommittee on cardiovascular diseases.—Chairman, Paul D. White, lecturer on medicine, Harvard Medical School, Boston, Mass.

Subcommittee on clinical investigation.—Chairman, J. H. Means, Jackson professor of clinical medicine, Harvard Medical School, Boston, Mass.

Subcommittee on infectious diseases.—Chairman, Francis G. Blake, Sterling professor of medicine, Yale University Medical School, New Haven, Conn.

Subcommittee on medical nutrition.—Chairman, J. S. McLester, professor of medicine, School of Medicine, University of Alabama, Birmingham, Ala.

Subcommittee on tropical diseases.—Chairman, Henry E. Meleney.

Subcommittee on tuberculosis.—Chairman, J. Burns Amberson, Jr., professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

Subcommittee on venereal diseases.—Chairman, J. Earle Moore.

7. *Committee on neuropsychiatry.*—Chairman, Winfred Overholser, professor of psychiatry, School of Medicine, George Washington University; Superintendent, St. Elizabeths Hospital, Washington, D. C.

Subcommittee on neurology.—Chairman, Foster Kennedy, professor of clinical medicine, Cornell University Medical College, New York City.

Subcommittee on psychiatry.—Chairman, Arthur H. Ruggles, clinical professor of psychiatry and mental hygiene, School of Medicine, Yale University; superintendent, Butler Hospital, Providence, R. I.

8. *Committee on pathology.*—Chairman, Howard T. Karsner.

9. *Committee on sanitary engineering.*—Chairman, Abel Wolman, professor of sanitary engineering, Johns Hopkins University, Baltimore, Md.

10. *Committee on shock and transfusions.*—Chairman, Walter B. Cannon.[1]

Subcommittee on blood substitutes.—Chairman, Joseph T. Wearn, professor of medicine, School of Medicine, Western Reserve University, Cleveland, Ohio.

Subcommittee on shock.—Chairman, Alfred Blalock, professor of surgery, Johns Hopkins University, Baltimore, Md.

11. *Committee on surgery.*—Chairman, Evarts A. Graham, Bixby professor of surgery, School of Medicine, Washington University, St. Louis, Mo.

Subcommittee on anesthesia.—Chairman, Ralph M. Waters, professor of anesthesiology, School of Medicine, University of Wisconsin, Madison, Wis.

Subcommittee on infected wounds and burns.—Chairman, Frederick A. Coller.

Subcommittee on neurosurgery.—Chairman, Howard C. Naffziger.

Subcommittee on ophthalmology.—Chairman, Harry S. Gradle, professor of ophthalmology (extramural), Northwestern University School of Medicine, Chicago, Ill.

Subcommittee on orthopedic surgery.—Chairman, George E. Bennett, adjunct professor of orthopedic surgery, School of Medicine, Johns Hopkins University, Baltimore, Md.

Subcommittee on otolaryngology.—Chairman, A. C. Furstenberg, professor of otolaryngology and dean of the School of Medicine, University of Michigan, Ann Arbor, Mich.

Subcommittee on physical therapy.—Chairman, John S. Coulter, associate professor of physical therapy, School of Medicine, Northwestern University, Chicago, Ill.

Subcommittee on plastic and maxillofacial surgery.—Chairman, Robert H. Ivy, professor of maxillo-facial surgery, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on radiology.—Chairman, A. C. Christie, professor of clinical radiology, School of Medicine, Georgetown University, Washington, D. C.

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[1] Deceased October 1, 1945.

Subcommittee on thoracic surgery.—Chairman, Evarts A. Graham.

Subcommittee on urology.—Chairman, Herman L. Kretschmer, professor of urology (surgical), College of Medicine, University of Illinois, Chicago, Ill.

Subcommittee on vascular injuries.—Chairman, John Homans, clinical professor of surgery, emeritus, Harvard Medical School, Boston, Mass.

12. *Committee on treatment of gas casualties.*—Chairman, Milton C. Winternitz.

13. *Board for the coordination of malarial studies.*—Chairman, Robert F. Loeb.

Panel on clinical testing of antimalarials.—Chairman, James A. Shannon, professor of pharmacology, College of Medicine, New York University, New York City.

Panel on pharmacology of antimalarials.—Chairman, E. K. Marshall, Jr., professor of pharmacology and experimental therapeutics, School of Medicine, Johns Hopkins University, Baltimore, Md.

14. *Committee on information.*—Chairman, Morris Fishbein, editor, Journal of the American Medical Association, 535 North Dearborn Street, Chicago, Ill.

Subcommittee on historical records.—Chairman, John F. Fulton.

Subcommittee on publicity.—Chairman, Morris Fishbein.

VII. DIVISION OF BIOLOGY AND AGRICULTURE

Chairman.—Robert F. Griggs.
Vice chairman.—Remington Kellogg.

EXECUTIVE COMMITTEE

Chairman.—Robert F. Griggs.
Vice chairman.—Remington Kellogg; R. E. Coker, E. O. Essig, J. C. Walker.

MEMBERS OF THE DIVISION

Robert F. Griggs, chairman of the division; executive officer, department of botany, George Washington University, Washington, D. C.

REPRESENTATIVES OF SOCIETIES

American Association of Economic Entomologists

James I. Hambleton, principal apiculturist, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Beltsville, Md.

American Dairy Science Association

Clawson Y. Cannon, professor of dairy husbandry, Iowa State College, Ames, Iowa.

American Genetic Association

H. C. McPhee, Assistant Chief, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

American Institute of Nutrition

L. A. Maynard, director, School of Nutrition, and Professor of Animal Nutrition, Cornell University, Ithaca, N. Y.

American Physiological Society

Francis O. Schmitt, professor of biology, Massachusetts Institute of Technology, Cambridge, Mass.

American Phytopathological Society

J. C. Walker, professor of plant pathology, University of Wisconsin, Madison, Wis.

American Society of Agronomy

Merle T. Jenkins, principal agronomist in charge of corn investigations, Bureau of Plant Industry, Soils and Agricultural Engineering, United States Department of Agriculture, Beltsville, Md.

American Society of Animal Production

H. W. Marston, senior animal husbandman, Agricultural Research Administration, United States Department of Agriculture, Washington, D. C.

American Society of Biological Chemists

George O. Burr, professor of physiological chemistry, school of medicine, University of Minnesota, Minneapolis, Minn.

American Society for Horticultural Science

E. C. Auchter, director, Pineapple Research Institute of Hawaii, Honolulu, T. H.

American Society of Ichthyologists and Herpetologists

Karl P. Schmidt, chief curator of zoology, Field Museum of Natural History, Chicago, Ill.

American Society of Mammalogists

Remington Kellogg, Vice Chairman of the Division; Curator, Division of Mammals, Smithsonian Institution, Washington, D. C.

American Society of Parasitologists

Emmett W. Price, senior parasitologist, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

American Society of Plant Physiologists

Bernard S. Meyer, professor of botany, Ohio State University, Columbus, Ohio.

American Veterinary Medical Association

B. T. Simms, Chief, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.

American Society of Zoologists

C. W. Metz, professor of zoology and director of the zoological laboratory, University of Pennsylvania, Philadelphia, Pa.

Botanical Society of America

Arthur J. Eames, professor of botany, Cornell University, Ithaca, N. Y.

Ecological Society of America

H. A. Gleason, head curator and assistant director, New York Botanical Garden, Bronx Park, New York City.

Entomological Society of America

E. O. Essig, professor of entomology, University of California, Berkeley, Calif.

Genetics Society of America

P. C. Mangelsdorf, professor of botany and assistant director of the botanical museum, Harvard University, Cambridge, Mass.

Limnological Society of America

Paul S. Welch, professor of zoology, University of Michigan, Ann Arbor, Mich.

Mycological Society of America

Neil E. Stevens, professor of botany and head of the department of botany, University of Illinois, Urbana, Ill.

Poultry Science Association

T. C. Byerly, senior poultry husbandman, Bureau of Animal Industry, United States Department of Agriculture, Beltsville, Md.

Society of American Bacteriologists

Selman A. Waksman, professor of soil microbiology, Rutgers University, New Brunswick, N. J.

Society of American Foresters

Hardy L. Shirley, 324 Ostrom Avenue, Syracuse, N. Y.

Soil Science Society

——— ———.

Wildlife Society

Lloyd W. Swift, Chief, Division of Wildlife Management, Forest Service, United States Department of Agriculture, Washington, D. C.

MEMBERS AT LARGE

R. E. Coker, professor of zoology, and chairman of the division of natural sciences, University of North Carolina, Chapel Hill, N. C.

C. F. Korstian, dean of the school of forestry, Duke University, Durham, N. C.

James M. Sherman, professor of bacteriology and dairy industry, Cornell University, Ithaca, N. Y.

REPRESENTATIVES OF THE GOVERNMENT DESIGNATED BY THE PRESIDENT OF THE UNITED STATES

P. N. Annand, Chief, Bureau of Entomology and Plant Quarantine, United States Department of Agriculture, Washington, D. C.

Ira N. Gabrielson, Director, Fish and Wildlife Service, United States Department of the Interior, Washington, D. C.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Advisory committee to the division.—C. E. Allen, R. E. Coker, L. J. Cole, William Crocker, W. C. Curtis, B. M. Duggar, R. A. Harper, L. R. Jones, I. F. Lewis, Frank R. Lillie, C. E. McClung, Fernandus Payne, Lorande L. Woodruff, A. F. Woods.

FOOD AND NUTRITION BOARD

Chairman.—Frank G. Boudreau, executive director, Milbank Memorial Fund, 40 Wall Street, New York City.

Committees

Committee on cereals.—Chairman, R. R. Williams, chemical director, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Committee on the diagnosis and pathology of nutritional deficiencies.—Chairman, H. D. Kruse, biochemist, Milbank Memorial Fund, 40 Wall Street, New York City.

Committee on dietary allowances.—Chairman, Lydia J. Roberts, 5757 Drexel Avenue, Chicago, Ill.

Committee on fats.—Chairman, H. E. Longenecker, professor of chemistry, University of Pittsburgh, Pittsburgh, Pa.

Committee on food composition.—Chairman, C. A. Elvehjem, professor of biochemistry, University of Wisconsin, Madison, Wis.

Committee on food supply.—Chairman, John D. Black, Henry Lee professor of economics, Harvard University, Cambridge, Mass.

Committee on international food value problems.—Chairman, L. A. Maynard.

Committee on medical nutrition (this is also a subcommittee of the Division of Medical Sciences).—Chairman, James S. McAlester, professor of medicine, School of Medicine, University of Alabama, Birmingham, Ala.

Committee on milk.—Chairman, William E. Krauss, chief, department of dairy industry, Ohio Agricultural Experiment Station, Wooster, Ohio.

Committee on nutritional aspects of ageing.—Chairman, Russell M. Wilder.

Committee on nutrition of industrial workers.—Chairman, Frank G. Boudreau.

Committee on protein foods.—Chairman, W. C. Rose, professor of biochemistry, University of Illinois, Urbana, Ill.

Committee on research personnel.—Chairman, C. A. Elvehjem.

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Committee on training of research workers in agriculture.—Chairman, Richard Bradfield, professor of soil technology, Cornell University, Ithaca, N. Y.

Committee on veterinary service to farm animals.—Chairman, Roy C. Newton, vice president in charge of research, Swift & Co., Chicago, Ill.

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Committee on genetics of pathogenic organisms.—Chairman, E. C. Stakman.

Committee on human heredity.—Chairman, Laurence H. Snyder, professor of zoology and chairman of the Department of Zoology and Entomology, Ohio State University, Columbus, Ohio.

Committee on plant and animal stocks.—Chairman, Walter Landauer, professor of genetics, College of Agriculture, University of Connecticut, Storrs, Conn.

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Committee on wildlife (joint committee with the Wildlife Society).—Chairman, Walter P. Taylor, senior biologist in charge of cooperative wildlife research, Agricultural and Mechanical College of Texas, College Station, Tex.

American section, International Union of Biological Sciences.—The Division of Biology and Agriculture acts as the American section of the International Union of Biological Sciences.

REPRESENTATIVES OF THE DIVISION ON—

Board of trustees of Biological Abstracts.—C. W. Metz.
Institute for Research in Tropical America.—Robert F. Griggs, ex officio.
Board of governors, Crop Protection Institute.—S. E. A. McCallan.
Board of trustees, National Parks Association.—H. E. Anthony.

VIII. DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

Chairman.—Walter R. Miles.
Vice chairman.—F. H. H. Roberts, Jr.

EXECUTIVE COMMITTEE

Chairman.—Walter R. Miles.
Vice chairman.—F. H. H. Roberts, Jr.; W. M. Krogman, Willard C. Olson.

MEMBERS OF THE DIVISION

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REPRESENTATIVES OF SOCIETIES

American Anthropological Association

Ralph Beals, associate professor of anthropology, University of California at Los Angeles, Los Angeles, Calif.

Douglas Byers, professor of anthropology, Phillips Academy, Andover, Mass.

John P. Gillin, associate professor of anthropology, Duke University, Durham, N. C.

M. J. Herskovits, professor of anthropology, Northwestern University, Evanston, Ill.

W. W. Hill, associate professor of anthropology, University of New Mexico, Albuquerque, N. Mex.

W. M. Krogman, associate professor of anatomical and physical anthropology, University of Chicago, Chicago, Ill.

Cornelius Osgood, associate professor of anthropology, and curator of anthropology, Peabody Museum, Yale University, New Haven, Conn.

R. Lauriston Sharp, assistant professor of anthropology, Cornell University, Ithaca, N. Y.

Julian H. Steward, director, Inter-American Anthropological Institutes, Bureau of American Ethnology, Washington, D. C.

American Psychological Association

John E. Anderson, professor of psychology, and director of the Institute of Child Welfare, University of Minnesota, Minneapolis, Minn.

Arthur G. Bills, professor of psychology, University of Cincinnati, Cincinnati, Ohio.

Hadley Cantril, associate professor of psychology, Princeton University, Princeton, N. J.

Edna Heidbreder, professor of psychology, Wellesley College, Wellesley, Mass.

Ernest R. Hilgard, professor of psychology, Stanford University, Stanford University, Calif.

Otto Klineberg, assistant professor of psychology, Columbia University, New York City.

Willard C. Olson, professor of education and director of research in child development, University of Michigan, Ann Arbor, Mich.

Robert R. Sears, professor of child psychology and director of the child welfare research station, State University of Iowa, Iowa City, Iowa.

Kenneth W. Spence, professor of psychology, State University of Iowa, Iowa City, Iowa.

MEMBERS AT LARGE

Leonard Carmichael, president, Tufts College, Medford, Mass.

Clyde K. M. Kluckhohn, associate professor of anthropology, Harvard University, Cambridge, Mass.

Ralph Linton, professor of anthropology, Columbia University, New York City.

A. T. Poffenberger, professor of psychology, Columbia University, New York City.

F. H. H. Roberts, Jr., vice chairman of the division; archaeologist, Bureau of American Ethnology, Smithsonian Institution, Washington, D. C.

COMMITTEES

The chairman of the division is, ex officio, a member of all committees of the division.

Committee on African anthropology.—Chairman, M. J. Herskovits.

Committee on the anthropology of Oceania.—Chairman, George P. Murdock, professor of anthropology, Yale University, New Haven, Conn.

> *Subcommittee on native government.*—Chairman, Cora DuBois, professor of anthropology, Sarah Lawrence College, Bronxville, N. Y.

Committee on applied psychology and the war.—Chairman, John M. Stalnaker, dean of students, Stanford University, Stanford University, Calif.

Committee on basic needs in American archaeology.—Chairman, W. Duncan Strong, associate professor of anthropology, and director of the Archaeological Laboratory, Columbia University, New York City.

Committee on child development.—Chairman, R. S. Woodworth, professor of psychology, emeritus, Columbia University, New York City.

Subcommittee on finance.—Chairman, Lawrence K. Frank, 72 Perry Street, New York City.

Committee on classification of military personnel advisory to the Adjutant General.—Chairman, Walter V. Bingham, chief psychologist, Classification and Replacement Branch, Adjutant General's Office, War Department, Washington, D. C.

Advisory board on mechanical and technical personnel.—Chairman, C. L. Shartle, professor of psychology; Ohio State University, Columbus, Ohio.

Board on clinical psychology advisory to the Surgeon General of the Army.—Chairman, Walter V. Bingham.

Emergency committee in psychology.—Chairman, Karl M. Dallenbach, professor of psychology, Cornell University, Ithaca, N. Y.

Office of psychological personnel.—Acting director, Dael L. Wolfle, associate professor of psychology, University of Chicago, Chicago, Ill.

Subcommittee on occupational standards of psychologists.—Chairman C. L. Shartle.

Subcommittee on problems of leadership.—Chairman, Henry E. Garrett, professor of psychology, Columbia University, New York City.

Subcommittee on problems of mental deficiency.—Chairman, Edgar A. Doll, director at research, the Vineland Training School, Vineland, N. J.

Subcommittee on survey and planning.—Chairman, Robert M. Yerkes, emeritus professor of psychobiology, Yale University, New Haven, Conn.

Subcommittee on a textbook in military psychology.—Chairman, Edwin G. Boring, professor of psychology, Harvard University, Cambridge, Mass.

Committee on fellowships.—Chairman, Walter R. Miles.

Committee on food habits.—Chairman, Lawrence K. Frank.

Committee on the history of psychology and the war.—Chairman, Robert M. Yerkes.

Committee on international cooperation in anthropology (joint committee with the Division of Foreign Relations).—Chairman M. J. Herskovits.

Committee on international cooperation in psychology (joint committee with the Division of Foreign Relations).—Chairman, Herbert S. Langfeld, Stuart professor of psychology, Princeton University, Princeton, N. J.

Committee on Latin-American anthropology.—Chairman, John P. Gillin.

Committee on Latin-American psychology.—Chairman, Irvin L. Child, assistant professor of psychology, Yale University, New Haven, Conn.

Committee on release of psychological tests.—Chairman, C. L. Shartle, professor of psychology, Ohio State University, Columbus, Ohio.

Committee on selection and training of aircraft pilots.—Chairman, Morris S. Viteles, professor of psychology, University of Pennsylvania, Philadelphia, Pa.

Committee on a survey of South American Indians.—Chairman, John M. Cooper, professor of anthropology, Catholic University of America, Washington, D. C.

Committee on war service of anthropologists.—Chairman, Ralph Beals.

REPRESENTATIVES OF THE DIVISION ON—

Policy board of the National Indian Institute.—John M. Cooper.

American Council of Human Relations.—Morris E. Opler, assistant professor of anthropology, Claremont College, Claremont, Calif.

Committee on the recovery of archaeological remains, of the Smithsonian Institution.—W. Duncan Strong.

5. NATIONAL RESEARCH FELLOWSHIPS

The National Research Council has been entrusted by the Rockfeller Foundation with appropriations to provide for a limited number of post-doctorate fellowships for the purpose of promoting fundamental research in science primarily in educational and research institutions of the United States. These fellowships are awarded to persons who have demonstrated a high order of ability in research for the purpose of enabling them to obtain additional experience in research at institutions which make adequate provision for effective prosecution of research. Applicants are eligible for appointment who are citizens of the United States or of Canada and, as a rule, who are under 35 years of age and have fulfilled all requirements for the doctor's degree not later than the close of the calendar year in which their applications are filed, or who have had training equivalent to that represented by the doctor's degree. The minimum stipend for these fellowships is $2,000 per year. Under special conditions fellows may be appointed for study abroad.

In addition to fellowships in the general fields of medicine, maintained by the Rockfeller Foundation, the Council also administers fellowships for the study of the filtrable viruses and for investigations in the basic fields related to orthopedic surgery, supported by the National Foundation for Infantile Paralysis, Inc.

A special series of medical fellowships supported by a grant from the Rockfeller Foundation, and known as the Welch fellowships in internal medicine, is also awarded physicians under 40 years of age who are citizens of the United States and who have demonstrated unusual aptitude and promise of achievement in internal medicine, teaching, and investigation. These fellowships are designed to provide an opportunity for a prolonged period of advanced training in the field of internal medicine. This training may include study and investigation in the basic medical sciences as well as clinical experience, teaching, and research.

Another series of fellowships for studies in anaesthesia has recently been established through a grant from the American Society of Anesthesiologists, Inc., amounting to $12,000 for the year 1945–46. These fellowships are administered by the Medical Fellowship Board.

Natural Science

Fellowships in the following subjects are administered by the National Research Fellowship Board in the natural sciences: Physics, astronomy, chemistry, mathematics, geology, paleontology, physical geography, botany, zoology, agriculture, agriculture, forestry, anthropoligy, and psychology.

When requested to do so, the Board is ready to consider entering into cooperation with universities in the support of participating fellowships by providing a part-time research fellowship in connection with a part-time university instructorship.

Members of the Board

Ross G. Harrison, ex officio, Chairman of the National Research Council; Sterling professor of biology, emeritus, Yale University, New Haven, Conn., Secretary.

R. T. Chamberlin, professor of geology, University of Chicago, Chicago, Ill.

M. H. Jacobs, professor of general physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Frank B. Jewett, ex officio, president, National Academy of Sciences; National Defense Research Committee, 350 Fifth Avenue, New York City.

Duncan A. MacInnes, member, Rockefeller Institute for Medical Research, Sixty-sixth Street and York Avenue, New York City.

John C. Slater, professor of physics, in charge of the department, Massachusetts Institute of Technology, Cambridge, Mass.

Fellowships for 1945–46 have been awarded to the following persons:

In astronomy.—Suzanne E. A. van Dyke.

In botany.—John R. Laughnan, Aubrey W. Naylor, and Mortimer P. Starr.

In chemistry.—Andre J. deBethune, James A. Morrison, Harry Rapaport, B. Roger Ray, John D. Roberts, Ralph Spitzer, and C. Gardner Swain.

In mathematics.—Robert Schatten and Robert R. Stoll.

In zoology.—William D. McElroy, Charles B. Metz, and Harriett E. Taylor.

Medical Sciences

The fellowships in the medical sciences, including those relating to the filtrable viruses, orthopedic surgery, and anesthesia, are administered by the Medical Fellowship Board.

MEMBERS OF THE BOARD

Francis G. Blake, chairman, dean and Sterling professor of medicine, School of Medicine, Yale University, physician in chief, New Haven Hospital, New Haven, Conn.

Alfred Blalock, professor of surgery, School of Medicine, Johns Hopkins University, Baltimore, Md.

Paul R. Cannon, professor of pathology, University of Chicago, Chicago, Ill.

A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard Medical School, Boston, Mass.

Homer W. Smith, professor of physiology and director of the physiological laboratories, New York University College of Medicine, New York City.

Lewis H. Weed, ex officio, chairman, Division of Medical Sciences, National Research Council, professor of anatomy, and director of the School of Medicine, Johns Hopkins University, Baltimore, Md.

ADDITIONAL MEMBERS FOR THE CONSIDERATION OF THE WELCH FELLOWSHIPS IN INTERNAL MEDICINE

Robert F. Loeb, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

T. Grier Miller, professor of clinical medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

John B. Youmans, associate professor of medicine and director of postgraduate instruction, School of Medicine, Vanderbilt University, Nashville, Tenn.

Fellowships for 1945–46 have been awarded to the following persons:

In fields of general medicine.—Robert Guthrie, Alfred Pope, and Sidney S. Sobin.

In virus research.—Robert B. Lawson and Saul Malkiel.

In orthopedic surgery.—Alvis D. Finch.

Welch fellowships in internal medicine.—S. Howard Armstrong, Jr., and Joseph F. Ross.

Predoctoral Fellowships

In addition to the postdoctoral fellowships already described, the Rockefeller Foundation has granted to the National Research Council a sum of $335,000 available for the period ending June 30, 1948, for the maintenance of a series of emergency predoctoral fellowships in the natural sciences. These fellowships are designed to assist students whose training for the doctor's degree has been interrupted by the war to resume academic studies.

MEMBERS OF THE COMMITTEE ON PREDOCTORAL FELLOWSHIPS

John T. Tate, chairman, professor of physics and dean of the College of Science, Literature, and Art, University of Minnesota, Minneapolis, Minn.

Henry A. Barton, director, American Institute of Physics, 57 East Fifty-fifth Street, New York City.

Charles W. Bray, professor of psychology, Princeton University, Princeton, N. J.

Detlev W. Bronk, director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

L. P. Eisenhart, professor of mathematics, emeritus, Princeton University; 25 Alexander Street, Princeton, N. J.

W. A. Noyes, Jr. professor of chemistry, University of Rochester, Rochester, N. Y.

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REPORT OF THE NATIONAL ACADEMY OF SCIENCES

NATIONAL RESEARCH COUNCIL

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FISCAL YEAR

1946–1947

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1948

For Sale by the
Superintendent of Documents
U. S. Government Printing Office, Washington 25, D. C.
Price 35 Cents

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LETTER OF TRANSMITTAL

NATIONAL ACADEMY OF SCIENCES,
Washington, D. C., June 29, 1948.
Hon. ARTHUR H. VANDENBERG,
President pro tempore of the United States Senate,
Washington, D. C.

SIR: I have the honor to transmit to you herewith the annual report of the National Academy of Sciences for the fiscal year which ended June 30, 1947.

Yours respectfully,

ALFRED N. RICHARDS,
President.

ACT OF INCORPORATION

AN ACT To incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That Louis Agassiz, Massachusetts; J. H. Alexander, Maryland; S. Alexander, New Jersey; A. D. Bache, at large; F. B. Barnard,[1] at large; J. G. Barnard, United States Army, Massachusetts; W. H. C. Bartlett, United States Military Academy, Missouri; U. A. Boyden,[2] Massachusetts; Alexis Caswell, Rhode Island; William Chauvenet, Missouri; J. H. C. Coffin, United States Naval Academy, Maine; J. A. Dahlgren,[2] United States Navy, Pennsylvania; J. D. Dana, Connecticut; Charles H. Davis, United States Navy, Massachusetts; George Englemann, Saint Louis, Missouri; J. F. Frazer, Pennsylvania; Wolcott Gibbs, New York; J. M. Giles,[3] United States Navy, District of Columbia; A. A. Gould, Massachusetts; B. A. Gould, Massachusetts; Asa Gray, Massachusetts; A. Guyot, New Jersey; James Hall, New York; Joseph Henry, at large; J. E. Hilgard, at large, Illinois; Edward Hitchcock, Massachusetts; J. S. Hubbard, United States Naval Observatory, Connecticut; A. A. Humphreys, United States Army, Pennsylvania; J. L. Le Conte, United States Army, Pennsylvania; J. Leidy, Pennsylvania; J. P. Lesley, Pennsylvania; M. F. Longstreth, Pennsylvania; D. H. Mahan, United States Military Academy, Virginia; J. S. Newberry, Ohio; H. A. Newton, Connecticut; Benjamin Peirce, Massachusetts; John Rodgers, United States Navy, Indiana; Fairman Rogers, Pennsylvania; R. E. Rogers, Pennsylvania; W. B. Rogers, Massachusetts; L. M. Rutherfurd, New York; Joseph Saxton, at large; Benjamin Silliman, Connecticut; Benjamin Silliman, junior, Connecticut; Theodore Strong, New Jersey; John Torrey, New York; J. G. Totten, United States Army, Connecticut; Joseph Winlock, United States Nautical Almanac, Kentucky; Jeffries Wyman, Massachusetts; J. D. Whitney, California; their associates and successors duly chosen, are hereby incorporated, constituted, and declared to be a body corporate, by the name of the National Academy of Sciences.

Sec. 2. *And be it further enacted,* That the National Academy of Sciences shall consist of not more than fifty ordinary members, and the said corporation hereby constituted shall have power to make its own organization, including its constitution, bylaws, and rules and regulations; to fill all vacancies created by death, resignation, or otherwise; to provide for the election of foreign and domestic members, the division into classes, and all other matters needful or usual in such institution, and to report the same to Congress.

Sec. 3. *And be it further enacted,* That the National Academy of Sciences shall hold an annual meeting at such place in the United States as may be designated, and the Academy shall, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science or art, the actual expense of such investigations, examinations, experiments, and reports to be paid from appropriations which may be made for the purpose, but the Academy shall receive no compensation whatever for any services to the Government of the United States.

Galusha A. Grow,
Speaker of the House of Representatives.
Solomon Foote,
President of the Senate pro tempore.

Approved, March 3, 1863.
Abraham Lincoln, *President.*

---

[1] The correct name of this charter member was F. A. P. Barnard.
[2] Declined.
[3] The correct name of this charter member was J. M. Gilliss.

AMENDMENTS

AN ACT To amend the act to incorporate the National Academy of Sciences

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to incorporate the National Academy of Sciences, approved March third, eighteen hundred and sixty-three, be, and the same is hereby, so amended as to remove the limitation of the number of ordinary members of said Academy as provided in said act.

Approved, July 14, 1870.

AN ACT To authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, and its several supplements be, and the same is hereby, authorized and empowered to receive bequests and donations and hold the same in trust, to be applied by the said Academy in aid of scientific investigations and according to the will of the donors.

Approved, June 20, 1884.

AN ACT To amend the act authorizing the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the act to authorize the National Academy of Sciences to receive and hold trust funds for the promotion of science, and for other purposes, approved June twentieth, eighteen hundred and eighty-four, be, and the same is hereby, amended to read as follows:

"That the National Academy of Sciences, incorporated by the act of Congress approved March third, eighteen hundred and sixty-three, be, and the same is hereby, authorized and empowered to receive by devise, bequest, donation, or otherwise, either real or personal property, and to hold the same absolutely or in trust, and to invest, reinvest, and manage the same in accordance with the provisions of its constitution, and to apply said property and the income arising therefrom to the objects of its creation and according to the instructions of the donors: *Provided, however*, That the Congress may at any time limit the amount of real estate which may be acquired and the length of time the same may be held by said National Academy of Sciences."

SEC. 2. That the right to alter, amend, or repeal this act is hereby expressly reserved.

Approved, May 27, 1914.

ANNUAL REPORT OF THE NATIONAL ACADEMY OF SCIENCES

REVIEW OF THE YEARS 1939–47

At the end of 8 years' service as president of the National Academy of Sciences it occurs to me that a brief review of a few of the more important activities of the Academy and its principal operating committee, the National Research Council, over the entire period might be more appropriate and interesting than merely a summary of events for the fiscal year 1946–47.

Practically the entire 8-year interval was covered by activities concerned with preparation for war; the war years; and the early postwar period. While many of the normal functions of both the Academy and Council continued, they were subordinate to the functions imposed by the Academy's Act of Incorporation which constitutes it as the official advisor to Government in matters of science and technology. During most of the time few papers of a scientific or technical character were available or, if available, could be presented.

To a large extent the Academy ceased to function as a learned society in the traditional sense. While the regular two meetings a year were held, they were devoted mainly to the dispatch of routine business. Such scientific sessions as were possible were closed to the public and were confined to the presentation of confidential reports to the members on war research. In part these were reports by members and in part by high-ranking officers of the military establishments.

Because of the nature of the situation, the long-established custom of holding the autumn meeting away from Washington had to be abandoned temporarily and practically the only items of general scientific interest at either the spring or fall meetings were the evening lectures. In a word, for 6 years at least the Academy functioned almost exclusively in its official advisory capacity. With the cessation of active hostilities and the coming of more normal times, it is to be hoped that it will rapidly resume its more purely learned society activities.

The impact of the war years has, however, left an indelible imprint on both the Academy and Council. Their activities in aid of so many departments of Government—both civil and military—have so firmly established the capacity of both organizations to give completely unbiased scientific advice at the highest level and to administer intricate research undertakings, that increased calls on them in the future are inevitable. These will be not only from departments of Government but from civilian organizations and foundations as well.

During the past 8 years the size of the Academy has increased materially due to the decision to elect 30 rather than 15 members annually. This increase in new members, coupled with the loss by death of older men, has resulted in an Academy the majority of whose members have had no experience with its operation in peacetime. That they will bring to the Academy a new point of view and make it an even more effective organization in the years ahead is clear.

In only one of the past 8 years have conditions been such that presentation of any comprehensive general review of major activities was possible. Even now some of them are still restricted by the interests of national security. In what follows a few only of the more important major activities of the Academy and Council are noted. The minor ones are too numerous to mention.

One item of major importance arose and was disposed of before the problems of war preparedness overshadowed all else, viz, the attempt of the District Commissioners to abrogate the tax-free status of the Academy. From the time the property at 2101 Constitution Avenue was purchased and the Academy building erected, the Academy had been adjudged exempt from taxes. The District Commissioners sought to annul this status. In common with other nonprofit scientific and religious organizations similarly threatened, the Academy appealed to Congress which, after extended consideration, overruled some of the contentions of the Commissioners and passed an act which specifically named the Academy and some others as tax-exempt.

The first impact of war preparedness on the Academy and Research Council came in the form of urgent requests from various branches of the Military Establishment—notably the offices of the Surgeons General—for aid in organizing civilian science for war research and development work in fields recognized as certain to be of major importance to the military. These requests were directly in line with what the Academy and Council were uniquely qualified and obligated to do under the Academy charter. Further, they were directly in conformity with the procedure of World War I when the Council was not only the Science Division of the Council of National Defense, but also the civilian scientific operating agency of many of the departments of the Army and Navy.

For a time it appeared that the Academy, although willing and anxious to undertake the work, might not be able to comply with the requests.

The difficulty arose out of modifications in governmental structure and practice which had taken place in the interval subsequent to World War I.

In that period the Comptroller General's office had been established and had formulated rules which rigidly prohibited departments of Government from advancing money on work requested under contract prior to actual completion unless specific authorization for it was contained in the congressional acts of appropriation. This rule had of course to be revised drastically later under the stress of war when only government was in position to supply the vast amounts of money needed by contractors as working capital.

While, therefore, the Academy was willing to undertake the work and the requesting departments were willing to pay the cost of it, the Academy, under the ruling of the Comptroller General, was required to supply the working capital. As the Academy had no such funds at its disposal nor, because of its character, the ability to make commercial loans, it appeared for a time that it would have to default on its statutory obligation.

Fortunately a number of the foundations took the position that the Academy could not in the national interest be permitted to be placed in this position. As a result, during the years 1939–40–41 they made grants of many hundred thousand dollars to the Academy and so enabled it to comply with all requests.

When, therefore, the military and civilian departments of Government were finally implemented properly, much of the preliminary work was already done; further work adequately organized; and much valuable time saved.

Possibly the two most striking and significant examples of the value of this early work were those of the Medical Division NRC, and the Academy Committee on Strategic Minerals and Metals (later the War Metallurgy Committee) formed at the request of the War Production Board.

In the case of the former, civilian medical research for war was fully organized and operating by the time the medical departments of the Army and Navy were put on a war footing. Later still when the Committee on Medical Research was created as a part of the Office of Scientific Research and Development, the Medical Division of the Council became its main operating agency.

The War Metallurgy Committee later acted as a Division of the National Defense Research Committee, thus constituting a single coordinated military and civilian agency for metals and minerals research and development.

As was the case in the days before World War I, appreciation of the vital role of science in the impending conflict was sensed first by leading scientists in the days before World War II. Then, as in the earlier conflict, consideration of its effective organization headed up in the Academy.

Both because of the part played by the Academy and Research Council in the first war and because the permanent Research Council was established at President Wilson's request, specifically among other things to provide a civilian agency for aid to the military, it was natural that the first approach should have been toward reactivation of the Council for war.

Two serious obstacles to this appeared almost immediately. One of these was the changed conditions as to funds referred to above. This could only be changed effectively by act of Congress or by amendment of the Academy charter. The other was the fact that in the preceding 25 years when the Council was little used by the military it had developed almost wholly along civilian lines. Its formal organization and the character of the personnel constituting it were those indicated for this work rather than those best qualified for the problems of war. To alter these conditions would have been a slow major operation which the urgency of the situation did not permit.

These obstacles made it clear that an effective temporary organization must be set up in the structure of the executive department with the Academy and Council acting in cooperation. So it came about that the National Defense Research Committee, whose civilian members were all members of the Academy, was created and later enlarged to be the Office of Scientific Research and Development.

Two of the most important but least known war services of the Academy were those concerned with the development of the atomic bomb and defense against possible biological warfare, both top-secret matters.

At the outset of consideration of atomic fission as a possible effective weapon, the Academy was formally requested to examine and report on the matter; also as to the probable time elements involved in a successful solution if one appeared possible. A select committee of the most distinguished scientists was appointed and on the authority of its report all the great undertaking which led finally to Hiroshima and Nagasaki was based. It was an extraordinary example of wise, courageous, far-sighted, scientific statesmanship.

In the case of defense against possible biological warfare, the request to the Academy for advice came in a personal secret letter from the Secretary of War. Again a select committee of the most distinguished scientists, this time in the field of biology, was appointed to review and report. The findings of this committee after the most exhaustive and critical study of biological warfare in all its possible aspects ever undertaken was so conclusive that the War Department immediately organized secret research and development work on a huge scale. As a part of this undertaking the Secretary of War insisted that the Academy continue to exercise top supervision of the entire undertaking. This was done through a secret committee operating under a succession of cryptic designations.

Further, the more completely to guard the top-secret character of the work, the offices of this high command were installed in specially prepared and guarded quarters in the basement of the Academy building. So carefully was the confidential character of this work protected that outside the War Department, the officers of the Academy, and the members of the committee, it is doubtful if many even of the Academy membership knew anything of it.

In quite another but equally important sector the Council played a dominant role. Through its committee on the Quartermaster's department it operated throughout the war as the top research and development agency for that vast sector of the Army. It is doubtful whether there was anywhere a more harmonious effective liaison between civilian science and the military than existed between this committee and the agency it was set up to aid. It is likewise noteworthy that the relationship thus established is being continued.

To one familiar with the requirements of warfare it is always an enigma as to why the problems of the most important and valuable implement of warfare—man—command the least public attention. The focus of excitement is always on the instruments of destruction and their efficient operation. The departments of the military concerned with them can command almost unlimited support merely for the asking. Despite the fact that no tools however good intrinsically are of much value unless the men for their operation are available in good physical condition when they are wanted, the two departments of the military that are primarily responsible for their well-being, viz, the Quartermaster Corps and the Medical Corps, always have a hard fight to obtain the minimum of what they require in the way of funds and qualified personnel. The one is concerned with the whole vast inconceivably complex problem of adequate and proper food, clothing, and the million and one items of equipment man requires under an incredible variety of conditions. The other with the problems of keeping men well at all times and of repairing promptly and effectively the damage of disease and battle.

It is a tribute to the men who devote their lives to these nonglamorous aspects of war that they do as well as they do in the face of the obstacles that confront them. There are no sectors of modern warfare where civilian science is more needed or can be of more constructive help than in these two.

Two other outgrowths of the Academy's war activity of major importance might be mentioned, viz, the request to it to give top scientific advice to the occupation forces in Japan on the plans to reorganize the scientific and technical structure of that country along peaceful lines and the request that the Academy set up and operate a continuing survey of the after-effects on the survivors of the atomic bombing of Hiroshima and Nagasaki.

In response to the first request, which came directly from General MacArthur and the Secretary of War, the Academy appointed a committee of distinguished scientists to visit Japan and study the whole matter. Their report and recommendations were accepted by both the occupation forces and the Japanese and are the basis of new laws about to go into effect.

The sending of the mission was made possible through the generosity of the Rockefeller Foundation.

The second request was made to the Academy directly by the President of the United States and is supported financially by funds appropriated by the Atomic Energy Commission. Since there are nearly 15,000 survivors of the two explosions, old and young, on whom complete data as to location, exposure, etc., is available, the clinical opportunity for study of after-effects is unique. It is a study which may take years to complete. The mission permanently set up in Japan is under the supervision of the Medical Division, NRC.

While the main activities of the Academy and Council for the past 8 years have been concerned with war matters, they have not been to the complete exclusion of new long-range activities in civil science. Among these new things might be mentioned the fact (1) that the NRC has undertaken to act as the research agency of the Cancer Society in the administration of some millions of dollars annually in this sector of medicine; (2) that at the request of the United States Chamber of Commerce it has undertaken to do comprehensive buildings research with funds provided by the Chamber from industry; (3) that at the request of a number of societies in the field of biology it has undertaken to set up an Institute of Biology; and (4) that it has constituted a Committee on Agriculture in response to urgent requests for scientific leadership in that field.

One obvious evidence of the results of the impact of the war years in accelerating the growth of the Academy and Council is the fact that they have greatly outgrown the capacity of the Academy building. The question of completing the entire structure originally planned for 2101 Constitution Avenue will soon become an imperative one if it is not already so.

Probably the most striking thing to emerge from the experience of the past 8 years is the proof, if additional proof is necessary, of the wisdom of Congress in setting up the Academy with its broad charter.

The existence of a body based on the proven distinction in science of its members and obligated to give unbiased advice at top level and without compensation has proved of inestimable value not only to Government but to civil science as well. It constitutes not only an agency of constructive advice and service but likewise a shield of protection for the asking agency against the attacks of political or self-interest groups.

FRANK B. JEWETT,
President, 1939–47.

MEETINGS OF THE NATIONAL ACADEMY

AUTUMN MEETING, 1946

The 1946 autumn meeting of the National Academy of Sciences was held on October 17 to 22 in the Hall of the American Philosophical Society, Philadelphia, Pennsylvania, and on October 23, in the Academy Building, Washington, D. C. Through joint action of the American Philosophical Society and the National Academy of Sciences, academies of 28 countries were invited to be represented at the autumn meetings of these societies in Philadelphia and in Washington. Thirty delegates participated in the meetings, as follows:

R. Accademia Nazionale dei Lincei, Rome; Guido de Ruggiero.
The Royal Society, London; Sir Henry Hallett Dale, Sir Alfred Egerton.
Académie des Sciences, Institut de France, Paris; Maurice Caullery, Gaston Julia.
Kungl. Svenska Vetenskapsakademien, Stockholm; Per Geijer, Bertil Lindblad, Manne Siegbahn.
Det Kongelige Danske Videnskabernes Selskab, Copenhagen; Niels H. D. Bohr, Niels Erik Norlund.
Académie Royale de Belgique, Brussels; Paul Brien, Lucien Godeaux.
Akademie Véd a Umění, Prague; Václav Hlavatý.
Académie Suisse des Sciences, Geneva; Jean Weigle.
The Royal Society of New South Wales, Sydney; Francis Lions.
Det Koninklijke Nederlandsche Akademie van Wetenschappen, Amsterdam; B. C. P. Jansen.
Det Norske Videnskapsakademie i Oslo, Oslo; Olaf Holtedahl, H. Solberg.
Academia Românǎ, Bucharest; Dimitrie Gusti.
The Royal Society of New Zealand, Wellington; Robin Sutcliffe Allan.
The Royal Society of Canada, Ottawa; F. J. Alcock, Jacques Rousseau.
Academia Peruana, Lima; Carlos Monge.
Suomalainen Tiedeakatemia, Helsinki; Pentti Eskola.
Academia Brasileira de Sciencias, Rio de Janeiro; Mario P. de Brito.
Akademia Athenon, Athens; Spiridon Dontas.
Academia Sinica, Chungking; Y. R. Chao.
National Institute of Sciences of India, Calcutta; H. J. Bhabha, Sir K. S. Krishnam.
Academia Nacional de Ciencias Exactas, Buenos Aires; Bernardo Alberto Houssay.

Topics of international interest were selected for the scientific sessions of the two societies, including invited papers and open discussions on the subjects America's Role in the Growth of Science, Present Trends and International Implications of Science, Problems of International Cooperation in Science. The Pilgrim trust lecture, presented by Sir Henry Dale, was entitled, "The Freedom of Science."

Receptions and visits to the Academy of Natural Sciences of Philadelphia, the Philadelphia Museum of Art, the University of Pennsylvania, Princeton University, various institutions in Washington, and the centenary celebration of the Smithsonian Institution were a part of the program for the international delegates.

Following the closing sessions in Washington 20 delegates made a tour of the United States, visiting scientific institutions of particular interest in New Haven, Cambridge and Boston, Chicago. San Francisco, and Pasadena.

BUSINESS SESSIONS

Seventy-six members registered, as follows:

Adams, L. H.
Adams, Roger
Bailey, L. H.
Berkey, Charles P.
Blackwelder, Eliot
Blakeslee, A. F.
Bogert, Marston
Briggs, Lyman J.
Bronk, Detlev W.
Carlson, A. J.
Clarke, Hans T.
Cohn, Edwin J.
Compton, Arthur H.
Conklin, Edwin C.
Dodge, B. O.
Doisy, E. A.
Dryden, Hugh L.
Dunn, Gano
du Vigneaud, Vincent
Eisenhart, L. P.
Elvehjem, C. A.
Fleming, John A.
Fred, E. B.
Gasser, Herbert S.
Gilman, Henry
Graham, Clarence H.
Harrison, Ross G.
Hastings, A. Baird
Hecht, Selig
Houston, W. V.
Hubble, Edwin
Hulett, George A.
Hunsaker, J. C.
Jewett, Frank B.
LaMer, Victor K.
Langmuir, Irving
Larsen, Esper S., Jr.
Leith, C. K.
Lewis, Warren H.
Long, Esmond R.
Macelwane, James B.
MacInnes, Duncan A.
MacNider, William deB.
Mayer, Joseph E.
Michaelis, Leonor
Noyes, W. Albert, Jr.
Pauling, Linus
Piggot, Charles S.
Reeside, John B., Jr.
Reichelderfer, F. W.
Richards, Alfred N.
Rivers, Thomas M.
Romer, Alfred S.
Rose, William C.
Rossby, C. G.
Rubey, William W.
Scatchard, George
Shapley, Harlow
Simpson, G. G.
Slepian, Joseph
Stadie, William C.
Stakman, E. C.
Stanley, W. M.
Stone, Marshall H.
Sverdrup, H. U.
Tuve, M. A.
Van Slyke, Donald D.
Vaughan, T. Wayland
Veblen, Oswald
von Neumann, John
Werkman, C. H.
Williams, Robert R.
Willier, Benjamin H.
Wilson, Edwin B.
Wright, F. E.
Zworykin, V. K.

Niels Bohr, Sir Henry Dale, and Bernardo Houssay, foreign associates of the Academy, were also present.

PRESIDENT'S ANNOUNCEMENTS

DEATHS SINCE THE ANNUAL MEETING

Member

Robert Almer Harper, born January 21, 1862; elected to the Academy in 1911; died May 12, 1946.

Former executive secretary

Paul Brockett, executive secretary of the Academy from 1924 to 1944, died October 3, 1946.

BIOGRAPHICAL MEMOIR READ BY TITLE

Leo Henrik Baekeland, by C. F. Kettering.

DELEGATES APPOINTED SINCE THE ANNUAL MEETING

Walter Adams, Marston T. Bogert, Frederick E. Brasch (Library of Congress), Leslie C. Dunn, J. C. Hunsaker, Herbert Ives, Walter R. Miles, Peyton Rous, Theodore von Karman, representatives of the Academy at the celebration honoring the tercentenary of Sir Isaac Newton's birth, held in London, July 12 through July 20, 1946.

Leslie C. Dunn, delegate of the Academy at the bicentenary celebration of the Zurich Society of Natural Science at the meeting of the Swiss Society for the Advancement of Science, Zurich, Switzerland, September 6 to 9, 1946.

Henry Eyring, representative of the Academy at the inauguration of Albert Ray Olpin as president of the University of Utah, October 15, 1946.

Marston T. Bogert, representative of the Academy at a dinner in commemoration of the one hundredth year of independence of Liberia, in New York City, September 20, 1946.

Ernest Merritt, delegate of the Academy at the inauguration of Richard Leighton Greene as president of Wells College, November 1, 1946.

PRESIDENT'S REPORT

The president read a letter dated August 29, 1946, from Dr. Paul L. Dengler, founder and director of the Austro-American Institute of Education, Vienna, in which he made an appeal to American educators to extend a friendly helping hand to their Viennese colleagues through CARE. It was suggested that this letter, together with its enclosure, be sent to all members of the Academy and that those who wish to make contributions through CARE do so either for ultimate distribution through the Austro-American Institute or specifically to personal friends.

Acting on the suggestion of M. O. Chenoweth, of Salvage & Lee, New York City, the Academy voted to have a suitable memorial prepared and presented during the celebration of the one hundredth anniversary of the birth of Thomas A. Edison on February 11, 1947. Representatives of the Academy will be present at the celebration. Mr. Gano Dunn is to assist in the drafting of the memorial.

A letter from Jawaharlal Nehru, president of the Science Congress Association, transmitted through P. C. Mahalanobis, general secretary of the association, was read. This letter extends an invitation to the Academy to arrange to have several distinguished scientists visit India during the next session of the Indian Science Congress Association, to be held in Delhi from Januray 2 to 8, 1947, and also to visit important scientific centers in India following the meeting. A similar letter was addressed to the American Association for the Advancement of Science.

It was voted to approve in principle the participation of the National Academy of Sciences in the congress, the arrangements to be made by the officers of the Academy.

The president reported on his efforts to find a successor to George Scatchard as scientific adviser to Gen. Lucius Clay, head of the military government for Germany, and for an adviser to General MacArthur and the Japanese. It has been very difficult to find men of the caliber needed who can afford to be away for so long a time.

REPORTS OF THE TREASURER AND AUDITING COMMITTEE

The report of the treasurer of the Academy for the year ended June 30, 1946, was presented, and upon recommendation by the Council of the Academy, was accepted.

The report of the auditing committee was presented and accepted.

These reports, together with the auditors' certificate, appeared on pages 63 to 91 of the Annual Report of the National Academy of Sciences for the fiscal year 1945–46.

HENRY DRAPER FUND

The following report from the committee on the Henry Draper Fund was presented:

> The committee on the Henry Draper Fund recommends two grants for approval by the Academy:
>
> 1. To Gerald E. Kron, Lick Observatory, Mount Hamilton, Calif., $600 to build an electric pulse counter and for other equipment for photoelectric photometry of stars.

2. To Frank K. Edmondson, University of Indiana, Bloomington, Ind., $375 for the classification of spectra from plates at the McCormick Observatory.

The committee has no recommendation for the award of the Draper Medal at the present time.

JOEL STEBBINS, *Chairman.*

Report accepted and recommendations approved.

JAMES CRAIG WATSON FUND

The following report from the trustees of the James Craig Watson Fund was presented:

Your board of trustees of the Watson Fund reports:

Grant No. 56: In accordance with authorization voted by the Academy at its annual meeting, a grant of $2,000 has been made by the board to Dr. Jan H. Oort for the Leiden Observatory toward a total of $16,000 required for renewed observations of fundamental declinations of stars by means of azimuth observations from an observatory at the equator. Additional grants for the projects are:

From the Bache Fund	$1,100
From the Gould Fund	300
From the Henry Fund	360
By the American Philosophical Society through Dr. Shapley	240
By the International Astronomical Union	4,000
By the Netherlands Government	4,000
By private sources in Holland	4,000
Grand total	$16,000

Your board unanimously recommends:

Grant No. 57: A grant of $350 to the students' observatory of the University of California to be administered by the director, Dr. Sturla Einarsson, in support of initiating an international program of computing ephemerides of minor planets which will be in opposition in 1947. This function has hitherto been performed by the Rechen-Institut (R. I.) at Berlin-Dahlem, which has been destroyed. Part of its several activities are now carried on at Heidelberg under the director of the R. I., Dr. Kopff, but he has informed Sir Spencer Jones, president of the International Astronomical Union (I. A. U.) on a recent visit to Heidelberg, that on account of lack of staff and facilities the R. I. can no longer provide the ephemerides. According to Dr. Oort, secretary of the I. A. U., this is now one of the problems of international cooperation requiring most urgent solution, and he and Dr. Delporte, of Belgium, president of Commission Twenty on the positions and motions of minor planets, comets, and satellites, have urged your chairman as honorary president and former president of Commission Twenty to effect jointly with Dr. Brouwer, of Yale University, vice president, cooperation of American astronomers in computing ephemerides. Dr. Delporte has provided detailed directions for the computations. As a result Dr. Shapley, president of the American Astronomical Society, has appointed as a special American committee all 12 Americans of Commission Twenty, with Dr. Brouwer as chairman, for computing ephemerides.

The proposed grant of $350 is to be expended: (1) for mimeographing Dr. Delporte's directions for the American committee and other computers; (2) for assistance to Dr. Cunningham of the students' observatory in the computation of opposition dates for 1947 of those minor planets which according to the R. I. are most urgently in need of observation; (3) for further assistance to Dr. Cunningham in the computation as far as practicable of ephemerides for the first quarter of 1947.

Dr. Brouwer is being asked to organize the distribution of the computations among American astronomers for those planets which are not cared for in Europe, etc.

The I. A. U. has granted $2,500 gold francs to Dr. Delporte for the publication of the ephemerides. The University of California is providing the students' observatory with an additional modern computing machine and has granted Dr. Cunningham $500 for research on comet orbits.

A. O. LEUSCHNER, *Chairman.*

Report accepted and recommendation approved.

LIBRARY

The president reported on the disposition of the library material in the stack room in the basement of the Academy building as recommended by C. S. Hudson, chairman of the committee on the library, and the business manager; also on the disposition of four volumes of the Elephant Edition of Audubon's Birds and the volume of mammals which have been in the possession of the Academy for some years. These have been loaned to the Smithsonian Institution and will receive immediate attention by one of its experts on the treatment of bindings, and any other restoration, and will be deposited in the library of the Institution.

PRESENTATION OF MEDALS

At the dinner of the National Academy of Sciences held at the Benjamin Franklin Hotel, Philadelphia, on Monday evening, October 21, 1946, three gold medals were presented, as follows:

The Alexander Agassiz Medal and honorarium, awarded for 1946 by the committee on the Murray Fund to Joseph Proudman, F. R. S., professor of applied mathematics, University of Liverpool, director of the Liverpool Observatory and Tidal Institute, and secretary of the International Association of Physical Oceanography, in recognition of his distinguished studies of the tides of the world. The presentation address was made by H. U. Sverdrup. Sir Alfred Egerton, secretary of the Royal Society of London, accepted the award on behalf of Professor Proudman for transmission through diplomatic channels.

The Daniel Giraud Elliot Medal for 1944, awarded to George Gaylord Simpson, chairman of the department of geology and paleontology and curator of fossil mammals of the American Museum of Natural History, for his work Tempo and Mode in Evolution, Columbia University Press, 1944. Alexander Wetmore made the presentation address.

The Mary Clark Thompson Medal for 1946 and honorarium, awarded to John B. Reeside, Jr., in charge of paleontology and stratigraphy, United States Geological Survey, in recognition of his outstanding contributions to the knowledge of the stratigraphy and physical environments of the Mesozoic in the central part of the United States. The presentation address was made by Eliot Blackwelder.

PILGRIM TRUST LECTURE

The sixth and final Pilgrim Trust Lecture was given by Sir Henry Dale, past president of the Royal Society of London, on the Freedom of Science, Tuesday evening, October 22, 1946, in the auditorium of the University of Pennsylvania.

SCIENTIFIC SESSIONS

At the scientific sessions open to the public and held in the hall of the American Philosophical Society, Philadelphia, on Monday and Tuesday, October 21 and 22, 1946, and at the Academy Building in

Washington on Wednesday, October 23, 1946, the following papers were presented by invitation:

Symposium on Present Trends and International Implications of Science

MONDAY, OCTOBER 21, 1946

Harlow Shapley, Harvard College Observatory: Astronomy.

Carl G. A. Rossby, department of meteorology, University of Chicago: Meteorology.

Harald Ulrik Sverdrup, Scripps Institution of Oceanography, University of California: Oceanography.

Niels H. D. Bohr, department of theoretical physics, University of Copenhagen, Denmark: Atomic Physics.

James B. Macelwane, department of geophysics, St. Louis University: Geophysics.

John von Neumann, department of mathematics, Institute for Advanced Study: High-speed Computing Machines.

Charles Kenneth Leith, department of geology, University of Wisconsin: Mineral Resources.

TUESDAY, OCTOBER 22, 1946

Thomas Milton Rivers, Hospital of the Rockefeller Institute for Medical Research: Epidemic Diseases.

Elvin Charles Stakman, division of plant pathology and botany, University of Minnesota Experiment Station: Combating Plant Diseases.

William Cumming Rose, department of biochemistry, University of Illinois: Nutrition.

Problems of International Cooperation in Science

Alexander Wetmore, Secretary, Smithsonian Institution: Publications and Exchange of Publications.

John A. Fleming, department of terrestrial magnetism, Carnegie Institution of Washington: International Scientific Unions.

Jerome C. Hunsaker, department of mechanical engineering, Massachusetts Institute of Technology: International Congresses of Science.

WEDNESDAY, OCTOBER 23, 1946

Robert A. Millikan, California Institute of Technology: Interchange of Men of Science.

W. Albert Noyes, Jr., department of chemistry, University of Rochester: United Nations Educational, Scientific and Cultural Organization (UNESCO).

ANNUAL MEETING, 1947

The National Academy of Sciences held its annual meeting in the Academy Building, Washington, D. C., on April 28, 29, and 30, 1947.

BUSINESS SESSIONS

One hundred and sixty-four members registered, as follows:

Abbot, Charles G.
Adams, L. H.
Adams, Roger
Adkins, Homer
Anderson, R. J.
Armstrong, Charles
Bainbridge, K. T.
Bard, Philip
Beadle, George W.
Beams, J. W.
Berkey, Charles P.
Blalock, Alfred
Boring, Edwin G.
Bowen, Norman L.
Bradley, W. H.
Breit, Gregory
Briggs, Lyman J.
Bronk, Detlev W.
Bucher, Walter H.
Buddington, A. F.
Carlson, A. J.
Carmichael, Leonard
Clarke, Hans T.
Cleland, Ralph E.
Coble, A. B.
Coblentz, W. W.
Cochrane, E. L.
Cohn, E. J.
Conant, James B.
Condon, E. U.
Cori, Carl F.
Corner, George W.
Curme, George O., Jr.
Demerec, M.
Dobzhansky, Th.
Dochez, A. R.
Dodge, B. O.
Doisy, E. A.
Dryden, Hugh L.

J. Lawrence Smith Fund.—C. R. Longwell to succeed S. A. Mitchell as chairman; John A. Fleming to succeed Mr. Mitchell as member for a term of 5 years ending June 30, 1952.

Mary Clark Thompson Fund.—W. C. Mendenhall to succeed Eliot Blackwelder as chairman; A. F. Buddington to succeed Mr. Blackwelder as member for a term of 3 years ending June 30, 1950.

SECTION CHAIRMEN ELECTED BY THE SECTIONS FOR THE 3-YEAR TERM ENDING JUNE 30, 1950

Section of astronomy.—S. A. Mitchell to succeed F. R. Moulton.

Section of engineering.—H. L. Dryden to succeed Zay Jeffries.

Section of chemistry.—Wendell Latimer to succeed C. S. Marvel.

Section of botany.—R. E. Cleland to succeed W. J. Robbins.

Section of anthropology and psychology.—E. G. Boring to succeed A. V. Kidder; Mr. Kidder to act as informal vice chairman.

ACADEMY REPRESENTATIVE ON BOARD OF TRUSTEES OF SCIENCE SERVICE

Robert A. Millikan reappointed for a further term of 3 years ending with the annual meeting in 1950. (Other National Academy of Sciences representatives on the board of trustees of Science Service: Harlow Shapley, 1948; Warren H. Lewis, 1949.)

ACADEMY REPRESENTATIVE ON NATIONAL COMMISSION FOR UNESCO

Ross G. Harrison was appointed to represent the Academy on the United States National Commission for the United Nations Educational, Scientific, and Cultural Organization.

ACADEMY REPRESENTATIVE ON FELLOWSHIP BOARD OF GENERAL ELECTRIC EDUCATIONAL FUND

John T. Tate was reappointed Academy representative on the fellowship board of the Charles A. Coffin Foundation and the Gerard Swope Foundation of the General Electric Educational Fund.

DELEGATES APPOINTED SINCE THE AUTUMN MEETING

Inauguration of Lee A. DuBridge as president of California Institute of Technology, Pasadena, Calif., November 12, 1946: Frank B. Jewett.

Inauguration of Licenciado Miguel Alemán as President of Mexico, Mexico City, December 1, 1946: Frank B. Jewett.

Inauguration of Howard Jefferson as president of Clark University, Worcester, Mass., February 1, 1947: J. C. Hunsaker.

Centennial Science Conference at Rockford College, Rockford, Ill., February 21, 22, and 23, 1947: Frank B. Jewett and others.

Indian Science Congress Association, Delhi, India, January 2 to 8, 1947: E. U. Condon, E. Newton Harvey, Oscar Riddle, and Harlow Shapley.

Fifth International Hydrographic Conference, Monaco, April 22 to May 6, 1947: Rear Adm. Robert O. Glover, Hydrographer, Navy Department.

National Conference on UNESCO, Philadelphia, Pa., March 24, 25, and 26, 1947: Ross G. Harrison, Esmond R. Long, and William C. Stadie.

Inauguration of W. V. Houston as president of Rice Institute, Houston, Tex., April 10, 1947: Roger J. Williams.

Installation of the Hawaii Chapter of Sigma Xi, Honolulu, March 19, 1947: Karl T. Compton and Harlow Shapley.

Inauguration of Irvin Stewart as president of the University of West Virginia, Morgantown, April 26, 1947: Joseph Slepian.

Inauguration of Leonard M. Elstad as president of Gallaudet College, Washington, D. C., April 26, 1947: William W. Rubey.

DUES

The recommendation of the Council of the Academy that dues for membership in the Academy for the year ending with the annual meeting in 1948 be $10, was approved.

ROLL OF FOREIGN ASSOCIATES

The recommendation of the Council of the Academy that if a foreign associate be made a member of the Academy his name should not be included in the limited roll of 50 foreign associates, was approved.

PREFERENCE BALLOT

Approval was given to the recommendation of the Council of the Academy that because of the confusion in the names of Robert Erastus Wilson and Ralph Elmer Wilson on the preferential ballots (17 ballots indicating "R. E. Wilson"), such votes be distributed between the two R. E. Wilsons in the proportion of 9 to the one receiving the largest number of valid preference votes and 8 to the other.

Upon recommendation of the Council of the Academy it was moved that in the future the names of nominees be submitted in alphabetical order on a printed ballot.

NATIONAL RESEARCH COUNCIL

Full discussion concerning the aims and purposes of the Research Council followed the report of the chairman, Mr. Bronk, who believes more emphasis should be placed on efforts of the National Research Council to aid scientists to make maximum contributions to science. Mr. Jewett added that all members of the National Academy of Sciences should study the act of incorporation of the Academy, which gives to the Academy a broad charter, but also a mandate to perform special services whenever called upon by any department of the Government. The most important request received through the years was that contained in the Executive order of President Woodrow Wilson establishing the National Research Council. The National Academy of Sciences has been negligent in this obligation and should be more active in the National Research Council.

In this connection, it is the wish of members of the Council of the Academy to devote a half day during the next meeting of the Academy to general discussion and consideration of its problems.

REPORT OF THE FOREIGN SECRETARY

In his report the foreign secretary, Mr. Bronk, suggested that consideration be given to a much more selective procedure for the election of foreign associates to the Academy.

Mr. Bronk told of the return to their respective countries of the foreign guests at the autumn meetings of the Academy and Philosophical Society and of the appreciative letters which have been received from them, indicating the success of their visit to the United States.

Mr. Bronk also reported on the activities of the Division of International Relations of the National Research Council, formerly the Division of Foreign Relations. This division is much concerned at present with resumption of relations with the various international scientific unions.

REPORT OF THE HOME SECRETARY

Six members, one member emeritus, and one foreign associate have died since the last annual meeting, as follows:

Members

Simon Flexner, born March 25, 1863; elected to the Academy in 1908; died May 2, 1946.

Moses Gomberg, born February 8, 1866; elected to the Academy in 1914; died February 12, 1947.

Robert Almer Harper, born January 21, 1862; elected to the Academy in 1911; died May 12, 1946.

Dunham Jackson, born July 24, 1888; elected to the Academy in 1935; died November 6, 1946.

Herbert Spencer Jennings, born April 8, 1868; elected to the Academy in 1914; died April 14, 1947.

William Berryman Scott, born February 12, 1858; elected to the Academy in 1906; died March 29, 1947.

Member emeritus

Edward Laurens Mark, born May 30, 1847; elected to the Academy in 1903; died December 16, 1946.

Foreign associate

Sir Joseph Barcroft, Cambridge, England; elected a foreign associate in 1939; died March 21, 1947.

George Malcolm Stratton was transferred, at his request, to the roll of members emeriti.

There are now 382 members, 6 members emeriti, and 42 foreign associates. (Foreign associates elected later to membership in the Academy are not included in the total number of foreign associates.)

F. E. WRIGHT, *Home Secretary.*

Report accepted.

REPORTS OF TRUST FUNDS

ALEXANDER DALLAS BACHE FUND

During the past year the board of directors of the Alexander Dallas Bache Fund have made the following grants:

No. 404 for $600 to Dr. A. C. Smith, Arnold Arboretum, Jamaica Plain 30, Mass., for botanical explorations in the Fiji Islands.

No. 405 for $500 to Dr. E. D. Merrill, Harvard University, Cambridge 38, Mass., for aid in preparing an "Index Rafinesquianus."

No. 406 for $1,100 to Dr. Jan Oort, Leiden Observatory, Holland, for aid in determining from a station located on the Equator in Africa the fundamental declination of stars by measures of azimuth.

The assistant business manager of the Academy reports $8,692.67 as available for grants as of March 20, 1947.

W. J. V. OSTERHOUT,
SEWALL WRIGHT,
EDWIN B. WILSON, *Chairman.*

Report accepted.

JOHN J. CARTY FUND

The committee on the John J. Carty Fund unanimously recommended that the 1947 medal and award of $2,500 be presented in April of this year to Ross G. Harrison for the discovery that tissue cells may be grown outside of the animal body and by the use of this discovery to demonstrate the manner of growth of nerve fibers, one of the epochal contributions to scientific medicine and biology: for long and distinguished services as investigator, teacher, and councilor of students: and for statesmanly direction of the National Research Council during a period in which it played a vital part in the defense of the Nation.

The members of the Academy were polled in January, and 341 of the members approved by mail vote the recommendation of the committee for the award of the sixth John J. Carty Medal.

The business manager's office reports that the financial status of the Carty Fund as of February 28, 1947 is as follows:

Principal, invested	$25, 000. 00
Income, uninvested	2, 841. 77

Roger Adams,
Vannevar Bush,
Harvey Fletcher,
J. B. Murphy,
Isaiah Bowman, *Chairman.*

Report accepted and recommendation approved.

HENRY DRAPER FUND

The committee on the Henry Draper Fund hereby recommends a grant of $250 to Mrs. Margaret K. Krogdahl, in care of Dearborn Observatory, Northwestern University, Evanston, Ill., to assist in the publication of her research "On the Broadening of Neutral Helium Lines in Stellar Spectra."

Since the last annual meeting this committee recommended two grants which were duly approved by the Academy at the autumn meeting of 1946.

1. Gerald E. Kron, Lick Observatory, $600, to build an electric pulse counter for recording photoelectric observations of stars.
2. Frank K. Edmondson, University of Indiana, $375, for the classification of spectra from plates at the McCormick Observatory.

The committee makes no recommendation for the award of the Henry Draper Medal at the present time.

The treasurer reports that the financial status of the Draper Fund as of February 28, 1947, was:

Principal, invested	$10, 000. 00
Income, uninvested	1, 206. 90

W. S. Adams,
J. A. Fleming,
A. S. King,
Otto Struve,
Joel Stebbins, *Chairman.*

Report accepted and recommendation approved.

DANIEL GIRAUD ELLIOT FUND

Herewith I submit the report of the Daniel Giraud Elliot Medal committee on the award for 1945. Our unanimous recommendation is as follows:

Dr. Sewall Wright, for his fundamental work dealing with the genetics of evolutionary processes; a program based on work over a long period, including his paper, "The Differential Equation of the Distribution of Gene Frequencies" (Proceedings of the National Academy of Sciences, vol. 31, No. 12. 1945).

William K. Gregory, *Chairman.*

Report accepted and recommendation approved.

WOLCOTT GIBBS FUND

No applications for grants from the Wolcott Gibbs Fund of the National Academy of Sciences have been received this year.

Gregory P. Baxter, *Chairman.*

Report accepted.

BENJAMIN APTHORP GOULD FUND

The Directors of the Benjamin Apthorp Gould Fund of the National Academy of Sciences have the honor to report to the Academy as follows:

In the period from March 1, 1946, to February 28, 1947, the following grants were made from the Gould Fund:

Grant No. 70: To Dr. Jan H. Oort, Director of Sterrewacht, Leiden, Holland, in support of his astronomical researches, $300.

Grant No. 71: To Dr. Dirk Brouwer, of Yale University, for the support of the Astronomical Journal, $800.

The status of the Gould Fund as of February 28, 1947, was as follows:

Invested capital	$19, 988. 80	Uninvested capital	$11. 20
Invested income	10, 000. 00	Uninvested income	4, 446. 77
Total invested	29, 988. 80	Total not invested	4, 457. 97

Total invested and not invested, $34,446.77.

Walter S. Adams,
Joel Stebbins,
Forest R. Moulton, *Chairman.*

Report accepted.

MARCELLUS HARTLEY FUND

The Committee on the Marcellus Hartley Medal Award unanimously desires to recommend Dr. Karl T. Compton for the award to be made at the annual meeting of the Academy to be held in April 1947. The committee is of the opinion that Dr. Compton fulfills to a high degree the purposes for which the Public Welfare Medal is awarded:

"It is the purpose of the Public Welfare Medal to mark the appreciation of the National Academy for eminent services to the public, performed without a view to great monetary gains and by methods which in the opinion of the Academy are truly scientific."

The Marcellus Hartley Fund Committee therefore recommends the award of the Public Welfare Medal for eminence in the application of science to the public welfare to Karl T. Compton in recognition of his distinguished contributions of an original character to the science of physics, of his long and valuable career in the field of education and of university administration, and of his great service to the Government of the United States both before the late war and during the war period as a member of the National Defense Research Committee and as Director of the Office of Field Service of the Office of Scientific Research and Development.

The business manager of the Academy informs me that the status of the Marcellus Hartley Fund as of February 28, 1947, was as follows:

Principal, income	$1, 200. 00
Income, uninvested	525. 11

J. B. Conant,
E. G. Conklin,
Zay Jeffries,
Harlow Shapley,
J. T. Tate,
A. R. Dochez, *Chairman.*

Report accepted and recommendation approved.

JOSEPH HENRY FUND

The Committee on the Joseph Henry Fund reports that only one request for a grant of $600 has been received this year and is now under consideration by the committee.

The business manager of the Academy reports the invested principal of the fund to be $47,163.50 and the cash balance of accumulated income to be $5,801.18 as of March 1947.

Detlev W. Bronk, *Chairman.*

Report accepted. Academy approval, subject to the final approval of the committee, was given to the above-mentioned grant of $600 to E. Carl Sensenig, Tulane University of Louisana, supplementing a grant of $575 made to Dr. Sensenig in 1946. The committee approved this grant immediately following the annual meeting.

MARSH FUND

The committee recommends that the following grants be made from the uninvested income of the Marsh Fund:

1. $150 to Dr. Albert E. Wood, department of biology, Amherst College, Amherst, Mass. For illustrations and incidental expenses involved in studies of Eocene rodents of the family Paramyidae.
2. $300 to Dr. E. R. Eller, curator of geology and invertebrate paleontology, Carnegie Museum, Pittsburgh 13, Pa. For partial field expenses for 3 months in 1947 tracing outcrops of the Potter Farm formation and collecting scolecodonts for subsequent laboratory research.
3. $600 to Dr. J. T. Gregory, curator of vertebrate paleontology, Peabody Museum of Natural History, Yale University, New Haven, Conn. For partial expenses of a field study of the stratigraphy and faunas of the Dokum formation of Texas and New Mexico.

According to information received from B. L. Kropp, assistant business manager of the Academy, the uninvested income of the Marsh Fund was $4,247.69 as of February 28, 1947.

A. F. Buddington,
W. J. Mead,
T. S. Painter,
E. W. Sinnott,
G. G. Simpson, *Chairman.*

Report accepted and recommendations approved.

MURRAY FUND

The committee on the Murray Fund unanimously recommends that for the year 1947 the Agassiz Medal and honorarium for contributions to oceanography be awarded to Felix Andries Vening Meinesz, professor of geodesy and geophysics in the University of Utrecht and president of the Netherlands Geodetic Commission.

Professor Vening Meinesz has particularly distinguished himself by his invention of apparatus for the determination of gravity at sea, by making many measurements of gravity over each of the great oceans, and by the utilization of his observations in interpreting the physical properties and behavior of the earth's crust beneath the waters and adjacent to the margins of the oceans.

Because of the instability of the water-soaked ground in the Netherlands it was not possible to make accurate measurements of gravity there with the older types of instruments. In order to overcome the difficulty Vening Meinesz designed his multiple-pendulum apparatus by which the desired measurements could be made on unstable ground. Prior to this invention attempts had been made to measure gravity at sea, notably by Hecker, but the results had errors 10 times greater than was permissible to measurements made on land. As Vening Meinesz' apparatus could be used on a submarine it made possible gravimetric surveys of the different oceans.

In 1923, with the help of the Netherlands Navy, Vening Meinesz made his first long voyage, going from a home port to the Netherlands East Indies by way of Suez. In subsequent years he made many voyages in the Atlantic, Pacific, and Indian Oceans, paying particular attention to the Mid-Atlantic Ridge and the West and East Indian island arcs. By the beginning of World War II, 844 observations had been made on Netherlands submarines, and many observations had been made on submarines of other countries.

Among the interesting results of the gravimetric surveys was the discovery of strips of ocean bottom with negative anomalies, which in both the East and West Indies coincide with the seismic belts and the deep narrow troughs of those regions. The Mid-Atlantic Ridge is fundamentally different from the great island arcs in that in it there are no strips with negative anomalies. Two other generalizations are that fields of positive anomalies usually coincide with deep basins and that the anomaly increases positively in going from shallow to deep water off both continental and island coasts.

Besides having made the measurements indicated above and having studied their distribution with reference to relief, seismic, and volcanic features, Vening Meinesz has proposed explanations of the processes operative in the formation of the troughs with the negative anomalies and the faults and folds in adjacent areas, a hypothesis for the explanation of the origin of the continents and ocean basins, and a hypothetical explanation of a postulated rotation of the earth's crust over deeper seated material.

The value of these unique researches in the study of the physical features of the ocean bottom and adjacent land areas is beyond estimate.

Vening Meinesz has deservedly received many honors. He is a foreign associate of this Academy; a foreign member of the Royal Soicety of London, and Academié des Sciences of Paris, and many other learned societies. He has already received at least four medals, one of them being the Penrose Medal of the Geological Society of America.

In the opinion of the Committee on the Murray Fund, Vening Meinesz is in every way worthy of receiving the Agassiz Medal and honorarium for his contributions to oceanography and we accordingly recommend that the award be made to him.

Henry B. Bigelow,
Harald U. Sverdrup,
T. Wayland Vaughan, *Chairman.*

Report accepted and recommendation approved.

J. LAWRENCE SMITH FUND

During the past year no requests have been received for grants from the J. Lawrence Smith Fund of the National Academy of Sciences.

From the records of the office of the business manager, on February 28, 1947, the uninvested income totaled $2,931.25, invested income $9,000, and invested capital $10,000.

L. H. Adams,
C. R. Longwell,
V. M. Slipher,
R. J. Trumpler,
S. A. Mitchell, *Chairman.*

Report accepted.

MARY CLARK THOMPSON FUND

The committee on the Thompson Medal has been unable to agree on a nominee for the current year. Therefore we have decided to postpone action until the following year.

C. O. Dunbar,
W. C. Mendenhall,
E. Blackwelder, *Chairman.*

Report accepted.

CHARLES DOOLITTLE WALCOTT FUND

On behalf of the board of the Charles Doolittle Walcott Trust Fund, I have the honor to transmit to the National Academy of Sciences our recommendation that the Charles Doolittle Walcott Medal and honorarium be presented this year to Dr. A. G. Vologdin of Leningrad, in recognition of his outstanding work on the Cambrian and Pre-Cambrian faunas of the Soviet Union.

He was the first choice of three of the five members of the Board and was the second choice of a fourth who now joins in the majority vote. Unfortunately, it has been impossible to contact Dr. O. T. Jones, the fifth member of the board, who has not replied to repeated letters.

For several years, Dr. Vologdin has been engaged in a comprehensive project of studying the faunas of the Cambrian and late Pre-Cambrian rocks of the Soviet Union, particularly in the Arctic region. The following are among his noteworthy publications in this field:

1. On the *Archaeocyathi* from the basin of the Laba River in north Caucasus. Acad. Sci. U. R. S. S. t. 4, Nos. 8–9, pp. 409–505. 1933.
2. Contributions to the stratigraphy of the Cambrium of the highland Shoria (Siberia). Soc. Nat. Moscou, B. n. s. t. 44, Sec. Géol., t. 14 (6), pp. 550–573. 1936.
3. On the Cambrian of the Urals, Acad. Sci. U. R. S. S. B. Ser. Géol., no. 4, pp. 681–692. 1937.
4. Archaeocyatha and the results of their study in U. S. S. R. Problems Paleont. (Moscow Univ., Lab. Pal. Pub.), vol. 2–3, pp. 453–500. 1937.
5. (with B. B. Chernyschev and L. D. Kiparisova). Paleontology of the Soviet Arctic. Arctic Inst. Trans., vol. 91, pp. 1–255, 67 figs., 34 pls. 1937.

6. Middle Cambrian Archeocyatha and algae from the south Urals. Problems Paleont. (Moscow Univ., Lab. Pal. Pub.), vol. 5, pp. 209–276, 12 figs., 12 pls. 1938.

7. (Vologdin et al). Atlas of the leading forms of the fossil faunas of the U. S. S. R. vol. 1. Cambrian. pp. 1–194, 50 pls. 1940.

8. To the stratigraphy of the pre-Cambrian and Cambrian in the eastern marginal part of the Jenissei ridge. Acad. Sci. U. R. S. S., B. Sér. Géol., no. 3, pp. 110–113. 1944.

CARL O. DUNBAR, *Chairman.*

Report accepted and recommendation approved.

REPORT OF THE NATIONAL SCIENCE FUND

Funds under the administration of the National Science Fund totaled $51,041.18 on April 1, 1947. In addition $18,307.56 was available for the expense of operating the fund and for administration of specific awards and grants.

From the $10,000 fund made available for grants-in-aid, the National Science Fund executive committee has made six grants totaling $4,750. In addition to grants previously reported, $2,000 has been allocated to the Massachusetts General Hospital for the support of studies of hypertension under the direction of Drs. Paul D. White, James C. White, Robert S. Palmer and others.

1. *The Charles L. Mayer nature of light awards.*—Dr. C. Jayaratnam Eliezer, of the University of Ceylon and Cambridge University, England, received a prize of $2,000 in December 1946 for his paper The Interaction of Particles and an Electromagnetic Field, which was considered by the special Advisory Committee to be the best comprehensive contribution to a logical, consistent theory of the interaction of charged particles with an electromagnetic field.

The second prize of $2,000 was not awarded. This was to be awarded for an outstanding contribution to our basic understanting of the nature of light and other electromagnetic phenomena which provides in terms intelligible to the community of scientists at large a unified understanding of the two aspects of these phenomena which are at present jointly described by wave and by corpuscular theories. None of the 28 entries formally submitted met fully the terms and conditions of the second award.

Competition for the remaining $2,000 prize will be extended throughout the calendar year 1947, but entries will be permitted under the terms and conditions of either the first or second awards described above.

2. *A taxonomic manual of the Penicillia.*—The sum of $13,000 is being administered for the restudy and amplification of Dr. Charles Thom's classification of the Penicillia published in 1930. This work is being carried out under the general supervision of Dr. Thom at the Department of Agriculture's Regional Laboratory in Peoria, Ill. This project is carried on under a cooperative agreement between the National Science Fund and the Bureau of Industrial and Agricultural Chemistry of the United States Department of Agriculture. Miss Dorothy H. Hayden and Miss Nina J. McCarty have been employed on a special short-term basis in order that this project may be brought to completion within the next few months, in addition to Miss Dorothy I. Fennell. Balance of funds remaining on April 1, 1947, was $6,508.54.

3. *The sugar research awards.*—Acceptance of the administration of the sugar research awards was formally announced at a dinner given by the directors of the Sugar Research Foundation, Inc., in Boston on March 2, 1945. The five awards amount to $45,000; on or about March 1, 1946, and of each of the three succeeding years, an intermediate prize of $5,000 will be given, and on March 1, 1950, a grand prize of $25,000 will be awarded. The awards will be given in recognition of the development of demonstrated original knowledge about or practical uses for sugar in the prosecution of the war, in medicine, agriculture, the arts, the industries, or in other fields of human endeavor as judged by their importance in terms of the advancement of knowledge and of the public benefit.

Recipients of the sugar research prizes will be recommended by a special committee consisting of:

Dr. A. Baird Hastings, Hamilton Kuhn professor of biochemistry, Harvard University.

Dr. Charles F. Kettering, vice president of General Motors Corp.

Dr. Carl S. Marvel, professor of organic chemistry, University of Illinois; president, American Chemical Society.

Dr. Edmund W. Sinnott, Sterling professor of botany, Yale University.

Dr. William C. Stadie, John Herr Musser professor of research medicine, University of Pennsylvania.

Dr. Vincent du Vigneaud, professor of biochemistry, Cornell University Medical College.

The first intermediate sugar research award was made to Messrs. Hassid, Doudoroff, and Barker of the University of California for their distinguished work on the enzymatic synthesis of sucrose. The advisory committee has submitted its recommendation for the recipient of the second intermediate sugar research award and announcement of the recipient will be made in the latter part of April 1947.

HOWLAND H. SARGEANT,
Executive Secretary, National Science Fund.

Report accepted.

REPORT OF THE COMMITTEE ON BIOGRAPHICAL MEMOIRS

During the past year four biographical memoirs have been published (John J. Abel, L. H. Baekeland, Douglas Johnson, E. O. Ulrich); three are in press (Franz Boas, Thomas Midgley, Jr., Hans Zinsser).

Eight assignments have been made in the past year, as reported by the president.

Some 47 memoirs previously assigned to Academy members have not yet been received in completed form.

The committee takes this occasion to request all members who have not yet deposited autographed photographs and other biographical material with the Academy to do so.

E. G. CONKLIN,
W. F. DURAND,
E. L. THORNDIKE,
F. E. WRIGHT,
GEORGE L. STREETER, *Chairman.*

Report accepted.

REPORT ON BUILDINGS AND GROUNDS

During the recent war period funds were specifically reserved for the purpose of undertaking, when labor and materials were available, several major projects of renovation of the Academy—Research Council Building. This program was initiated prior to the writing of last year's report and was continued on an accelerated basis during the year under review. The following were the major accomplishments:

(1) The painting of all interior walls and ceilings was completed in the autumn of 1946.

(2) All slag roofs in the rear central portion of the building were replaced with new materials.

(3) After the gravel walks around the flag poles on either side of the front of the lot were closed and grassed, a new concrete walk was installed from the east and west lot lines to the main front walk.

(4) What may be considered a comprehensive house-cleaning project was undertaken and completed in the board room, lecture room, reading room, entrance and main foyer, and auditorium. This work included cleaning and refinishing of all wood surfaces, ironwork, and stone in these areas, except that the stone floor in the auditorium has not yet been refinished. The water-colored decorations in the dome and adjacent areas, as well as the acoustilith tile background were brushed and the gold portions were washed.

(5) On the basis of a thorough examination, survey, and report on the electrical system in the building by a professional electrical and illuminating engineer, a complete overhauling of the wiring was undertaken and completed. This was the most extensive of the several projects. For several years much of the electrical wiring was loaded beyond its intended capacity due to the intensive utilization of space. Most of the circuit wiring was in poor condition and was replaced. All temporary service installations in areas where continuing demands were anticipated were replaced with permanent service. New feeders to all light panels were pulled in, providing for the first time three-phase, four-wire feeder distribution to the lighting panels. Four-lamp fluorescent units were installed in all offices on the third floor in order to provide adequate illumination. Many other improvements

and refinements in the service equipment were made. All wiring now conforms to the District of Columbia electrical code requirements. With the completion of this project the electrical wiring system for light and power in the building may be considered to be substantially in new-building condition.

Within the last year the auditorium, including the space under the east and west balconies, was cleared of the offices that were temporarily situated there. In January of 1947 the committee on medical research completed the removal of its offices from the building, permitting for the first time since 1942 the utilization of the entire office space in the building for the needs of the Academy and Research Council. Demands for space continue to equal or exceed the supply, in spite of the continued use of all exhibit rooms, the auditorium balconies, and the library for offices. Evidence of this is in the fact that at the time the staff headquarters of the Committee on Artificial Limbs of the Research Council were moved from Evanston, Ill., to Washington space in the Academy—Research Council Building was not available to house this project. Through the cooperation of the Veterans' Administration the staff is being accommodated in the Munitions Building.

The longer range plans for the plantings on the lot include the moving of smaller specimens from open spaces to the border areas, more effective grouping of a few of the shrubs and other plants, some reduction of the total area devoted to cultivated beds with a corresponding increase in the grass area, and the addition of new plants to replace those that have been lost during the past several years. It is intended that work along the lines indicated should proceed gradually and continuously as time of our staff permits, in order that the objectives may be attained as economically as possible.

G. D. Meid,
Custodian of Buildings and Grounds.

Report accepted.

REPORT OF JOINT COMMITTEE ON EXHIBITS

At the outset of World War II the Academy exhibition of apparatus illustrating fundamental principles and also recent developments, especially in physics, was removed. The exhibition rooms, including the auditorium and its galleries and the library, were converted into temporary offices. The Academy home was thereby impaired and the building converted temporarily into an office building.

The auditorium has now been cleared and can be used for meetings. Its galleries are still used as offices and storage space for filing cabinets.

At the time the Academy building was erected serious thought was given by Dr. Hale and others to the type of building which might best serve the purposes of the Academy. It was realized that to include an exhibition of apparatus which could be operated by the visitor might be wise and in accord with the dignity and functions of the Academy. The architect provided the space around the auditorium with exhibit halls. The exhibitions were successful and attracted 60,000 visitors each year, chiefly boys and girls of high-school age interested in science and fascinated by the demonstrations.

These activities were all laid aside during the war. They have not yet been resumed because the space is still held by offices for various groups engaged on Government and other projects.

Until after the rooms have been made available, no exhibits will be possible and the Committee on Exhibits will remain inactive. It is felt, however, that the committee should be retained ready to function awaiting the clearance of the exhibit halls.

F. E. Wright, *Chairman.*

Report accepted.

REPORT OF THE COMMITTEE ON LIBRARY

During the past year and a half the chairman of the committee on library has given considerable attention to a problem that has concerned this committee at various times over a period of years, namely, the use or disposition of the mass of unsorted periodicals and other publications that has accumulated in the Academy stackroom over many years. For the most part the publications referred to have been donated to the Academy by scientific organizations and Government agencies.

Early in 1946 the Academy administration employed one person to make a preliminary sorting of the material. The task was difficult because of the very large volume of periodicals to handle and the lack of adequate space for effective operations. This phase of the work was terminated June 30, 1946. In the course of this preliminary sorting a limited amount of obviously worthless nonscientific publications was destroyed. Certain publications of agencies such as the Smithsonian Institution and the Bureau of Mines were returned to those agencies. With the advice and recommendations of two Academy members from the Section of Astronomy, the chairman approved the transfer of a large collection of astronomical publications to a university observatory. The gifts referred to made possible the effective utilization of scientific materials in a manner not possible under the present conditions of Academy custodianship.

As might have been anticipated, individuals representing universities, scientific organizations, and foreign countries learned of the effort that was being made to dispose of some of the Academy's unsorted publications. This resulted in some competition among possible recipients of the materials. It was evident to the chairman of the committee on library that neither he, nor his committee, nor the Council of the Academy was qualified to appraise the needs of the libraries and institutions desirous of receiving those publications that were not to be retained by the Academy. Accordingly, the chairman recommended to the Council of the Academy (1) that publications of United States origin be transferred to the American Book Center (a cooperative enterprise with the Library of Congress, library associations, and the Department of State) for distribution to war-devastated libraries on a basis to be determined by that center, and (2) that publications of foreign origin be transferred to the Library of Congress for its own use or for placement in libraries, institutions, or scientific centers on a basis to be determined by the Library (The publications covered by both recommendations were exclusive of bibliographies, directories, atlases, and other useful working library materials which, it was felt, should be retained by the Academy.)

The Council of the Academy approved the first above-referenced recommendation, and directed that an attempt be made to inventory the publications of foreign origin for the guidance of the Council in any proposed action relative thereto. Some members of the Council of the Academy expressed the desire for the Academy to maintain complete collections of the proceedings and transactions of analogous academies of science and learned societies of the world. The inventory directed by the Council would indicate the extent to which the unsorted materials contained such publications of other academies and learned societies. The transfer to the American Book Center of the publications received by the Academy from sources within this country is substantially completed. A preliminary listing of the publications on hand from foreign sources will be undertaken in the near future provided personnel for this task can be obtained.

CLAUDE S. HUDSON, *Chairman.*

Report accepted.

REPORT ON THE PROCEEDINGS

The influence of the war upon the Proceedings may be judged from the following table which gives by sections of the Academy, except for genetics which is partly botany and partly zoology, the number of articles in each of the past 10 volumes with subtotals for 1937–41 and 1942–46:

Year	1937	1938	1939	1940	1941	Total	1942	1943	1944	1945	1946	Total
Mathematics	40	43	51	49	45	228	47	35	26	35	36	179
Astronomy	8	7	12	22	11	60	10	0	2	0	0	12
Physics	10	8	10	7	7	42	5	0	8	3	3	19
Engineering	1	0	0	0	0	1	0	0	1	2	0	3
Chemistry	9	5	9	11	12	46	8	3	0	1	0	12
Geology	3	4	3	0	0	10	1	0	0	0	0	1
Botany	8	4	9	8	8	37	11	8	4	4	0	27
Zoology	12	12	7	10	14	55	8	4	3	6	1	22
Genetics	22	12	21	14	29	98	17	20	26	10	21	94
Physiology	20	20	11	8	4	63	1	1	3	5	3	13
Pathology	1	2	0	1	4	8	6	10	7	15	5	43
Psychology	2	1	10	4	2	19	2	0	1	0	0	3
Total	136	128	143	134	136	677	116	81	81	81	69	428

The size of the volume of the Proceedings has varied greatly from the start; it was over 700 pages in early years, shrinking to about 400 in 1918, rising to 700 in 1920, shrinking to under 400 in 1921 and 1922, rising to nearly 1,000 in 1928, dropping down to 700 in 1931, rising to well over 1,000 in 1933, becoming stabilized at around 700 in the late years of the 1930's, and falling under the impact of the war to an all-time low of 336 pages for 1946. For the earliest volumes there was some pressure put upon members of the Academy to furnish material for their newly established journal, but in the main there has been no pressure upon members of the Academy or of the National Research Council to supply papers when the volume was small or to withhold them when it was large.

It will not do to overlook the fact that printing costs have risen sharply in the past 2 years and that, unless the budget available for the Proceedings be correspondingly increased, it is not to be expected that the average size of the volume can be maintained. At present there is a considerable preponderance of articles in mathematics and in genetics; but there was a time when the number of articles in physics considerably exceeded those in mathematics and genetics combined. Not only the total size of the volume but the distribution over the different subjects has varied greatly in response to changes in demand from the members of the Academy and the National Research Council for space in which to print scientific contributions which they have thought to be important.

EDWIN B. WILSON, *Editor.*

Report accepted.

REPORT ON THE RETIREMENT PENSION TRUST AGREEMENT

In the president's statement in the Annual Report of the Academy-Research Council for the year ended June 30, 1944, the adoption by the Council of a pension plan was reported. The plan was formalized in the execution of the National Academy of Sciences retirement pension trust agreement and was put in operation July 1, 1944.

During the first year the plan was in effect, certain amendments to the original trust agreement were proposed by the Academy's counsel and were adopted. The amendments changed none of the essential provisions of the agreement but served to clarify the terms and to eliminate some minor ambiguities in phraseology. Also, upon advice of counsel the trust agreement, as amended, was presented to the Internal Revenue Service and was approved as meeting the requirements of the Internal Revenue Code.

There were 35 participating members of the plan at the time of the writing of the last report, which was in July 1945. In April 1947, there were 34 members, 5 having been added to the membership and 6 dropped because of resignation from the employ of the Academy-Research Council. The premium cost of contracts for the present membership is approximately $10,000 per annum, of which the employee members pay nearly $2,600 through monthly pay-roll deductions. The balance of the premium cost for the retirement annuity contracts is borne by the Academy-Research Council and chargeable to those funds from which the members' salaries are paid.

In the opinion of the trustees the plan has been, for the most part, enthusiastically received by the employees. Most of those who declined to apply for membership did so by reason of the limited term of their employment. Other employees declined membership because of personal reasons which in no way reflected apathy toward the plan.

F. B. JEWETT, *Trustee.*
G. D. MEID, *Trustee.*

Report accepted.

DISCHARGE OF ADVISORY COMMITTEE ON SCIENTIFIC PUBLICATIONS

On recommendation of the chairman, L. P. Eisenhart, the Advisory Committee on Scientific Publications, a temporary joint committee of the National Academy and the National Research Council, was discharged with thanks.

DISCHARGE OF COMMITTEE ON THE CALENDAR

On recommendation of the chairman, F. E. Wright, the Committee on the Calendar was discharged with thanks.

CONTINUATION OF COMMITTEE ON WEIGHTS, MEASURES AND COINAGE

This committee was organized in 1863. Mr. Gano Dunn is the present chairman. It was the consensus that since it is the oldest committee of the Academy and might have some postwar duties, it should be continued though it has been inactive for a number of years.

REAPPOINTMENT OF MANAGING EDITOR OF THE PROCEEDINGS

Upon recommendation by the Council of the Academy, Mr. Edwin B. Wilson was reappointed managing editor of the Proceedings for a term ending with the 1947 autumn meeting.

RENUNCIATION OF ALEŠ HRDLIČKA BEQUEST

The president reported action taken by the Council of the Academy at its meeting on April 27 in renouncing the bequest to the Academy contained in the will of Mr. Aleš Hrdlickă, member of the Academy, who died in 1943.

RENUNCIATION OF WILLIAM BAMFORD BEQUEST

The president reported action taken by the Council of the Academy at its meeting on April 27 in approving the recommendation that the bequest contained in the will of Mr. William Brokaw Bamford, Monmouth County, N. J., be renounced.

SCIENTIFIC SESSIONS

The scientific sessions were held in the auditorium of the Academy Building and were open to the public. Papers on Isotope Tracers were presented by invitation.

Monday, April 28

S. E. Forbush, department of terrestrial magnetism, Carnegie Institution of Washington (introduced by M. A. Tuve): Solar Effects in Cosmic Rays (illustrated).

C. G. Abbot, Smithsonian Institution: The Sun a Regular Variable Star (illustrated).

J. H. Hildebrand, University of California: Forces Between Polyatomic Molecules (illustrated).

G. Breit and I. Bloch, Yale University: Relativistic Correction to the Magnetic Moment of the Deuteron.

SYMPOSIUM ON ISOTOPE TRACERS

Dean Cowie, department of terrestrial magnetism, Carnegie Institution of Washington: The Physical Basis for the Use of Tracers in Biology and Medicine (illustrated).

William F. Bales, University of Rochester: Blood Protein Studies with Labeled Elements. Read by title.

Vincent du Vigneaud, Cornell University Medical College: The Use of Isotopes in Studies on the Mechanism of the Conversion of Methionine to Cystine in the Animal Body.

A Baird Hastings, Harvard University Medical School: The Use of Isotopic Carbon in Metabolism Studies (illustrated).

D. Wright Wilson, University of Pennsylvania: The Use of C^{13} and C^{14} in Studying Metabolism in Animals (illustrated).

Louis B. Flexner, department of embryology, Carnegie Institution of Washington: Studies of the Permeability of Mammalian Membranes (illustrated).

MONDAY EVENING LECTURE

C. E. Kenneth Mees, vice president and director of research laboratories, Eastman Kodak Co., presented the public lecture on Modern Processes of Color Photography (illustrated), in the auditorium of the Natural History Museum, Smithsonian Institution, Washington, D. C.

TUESDAY, APRIL 29

Marston Morse, Institute for Advanced Study: Topological Methods in the Theory of Functions of a Complex Variable.

Edward Kasner, Columbia University: Algebraic Orthogonal Curves.

W. D. Harkins, University of Chicago: The Structure of Soap Micelles and the Synthesis of Rubber (illustrated).

D. A. MacInnes and B. Roger Ray, Rockefeller Institute for Medical Research: The Effect of Centrifugal Force on the E. M. F. of Galvanic Cells (illustrated).

Th. Dobzhansky and B. Spassky, Columbia University: Beneficial Mutations in Laboratory Strains of Drosophila.

M. Demerec, department of genetics, Carnegie Institution of Washington: Production of Mutations in Drosophila by Treatment with some Carcinogens.

A. F. Blakeslee and Sophie Satina, Smith College Genetics Experiment Station: Ovular Tumors Associated with Hybrid Embryos in Datura. Read by title.

William Hovanitz, University of Michigan (introduced by W. E. Bachmann): The Structure of Chromosomes as Viewed by Electron Microscopy (illustrated).

John R. Paul, Yale University School of Medicine: Geographical Aspects of the Epidemiology of Poliomyelitis (illustrated).

J. B. Whitehead, Johns Hopkins University: Dielectric Heating (illustrated).

Alfred Blalock, Johns Hopkins Hospital: The Surgical Treatment of Congenital Pulmonic Stenosis (illustrated).

PRESENTATION OF CARTY MEDAL

At the annual dinner of the Academy held at the Hotel Washington on Tuesday evening, April 29, 1947, the sixth John J. Carty Medal and award for the advancement of science, consisting of the Carty Medal and an honorarium of $2,500, was presented to Ross Granville Harrison—

> for the discovery that tissue cells may be grown outside of the animal body and by the use of this discovery to demonstrate the manner of growth of nerve fibers, one of the epochal contributions to scientific medicine and biology; for long and distinguished services as investigator, teacher, and councilor of students; and for statesmanly direction of the National Research Council during a period in which it played a vital part in the defense of the Nation.

Presentation remarks were made by James B. Murphy.

ELECTIONS

The elections at the annual meeting resulted as follows:

President for a term of 4 years ending June 30, 1951: Alfred N. Richards.

Home secretary for a term of 4 years ending June 30, 1951: F. E. Wright.

Two members of the Council of the Academy for terms of 3 years ending June 30, 1950: W. Albert Noyes, Jr., and Donald D. Van Slyke.

New foreign associates: P. A. Alexandroff, professor (topology), University of Moscow, U. S. S. R.; Frederic Charles Bartlett, director of the psychological laboratory, University of Cambridge, England; Johannes Nicolaus Brönsted, professor and director of the Institute for Physical Chemistry, Copenhagen, Denmark; Björn Helland-

Hansen, director, Geophysical Institute and professor of oceanography, Bergen, Norway; Kaj U. Linderstrøm-Lang, head of the chemical division, Carlsberg Laboratory, Copenhagen, Denmark.

New members: Luis W. Alvarez, Robert Fox Bacher, Paul Doughty Bartlett, Jacob Bjerknes, Francis Gilman Blake, Royal Alexander Brink, Ralph Works Chaney, Arthur C. Cope, Farrington Daniels, Arnold Gesell, James Gilluly, Richard Benedict Goldschmidt, Samuel A. Goudsmit, Charles H. Herty, Jr., Frederick Lee Hisaw, Wolfgang Köhler, Lewis G. Longsworth, Edwin Mattison McMillan, Walter Joseph Meek, John Lawrence Oncley, Lars Onsager, John P. Peters, Paul Althaus Smith, C. Richard Soderberg, Paul Alfred Weiss, Frits W. Went, Robert E. Wilson, E. Bright Wilson, Jr.

REPORT OF THE NATIONAL RESEARCH COUNCIL

For the year July 1, 1946, to June 30, 1947

(Prepared in the office of the Chairman of the Council with the assistance of the chairmen of divisions of the Council)

The following report is presented to the National Academy of Sciences by the National Research Council upon the activities of the Council during the fiscal year July 1, 1946, to June 30, 1947.

INTRODUCTION

This is the first year of the fourth decade of the National Research Council. The Council begins this new period of its history in times of revolutionary change following a Second World War.

It is appropriate to emphasize by recital that:

> The National Research Council is a cooperative organization of the scientific men of America. * * * During the World War the National Academy of Sciences at the request of President Wilson established the National Research Council * * * to assist the Government in organizing the scientific resources of the country. * * * As the work of the National Research Council progressed it became evident that the Council might be a useful organization for peacetime and it seemed desirable that the Council be perpetuated by the National Academy and assured of the permanent cooperation of the various departments of the Government.

Since its creation, the National Research Council has been recognized as a cooperative agency of all the scientists of the country for the furtherance of science and for the promotion of the military security and general welfare of the Nation. These functions place certain responsibilities upon the Council which are of especial concern at the present time.

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Such a responsibility is the obligation to undertake only activities which can be dealt with competently and on a rigorous scientific basis.

A growing realization of the value of science, a popular appreciation of the practical accomplishments of organized scientific research and the increasing availability of funds for science have increased the Council's opportunities for service. They have also burdened and tempted the Council.

During the war operations were appropriately inaugurated which required scientific members of our committees to perform routine administrative duties. Following the end of the war, additional activities of that sort were undertaken in order to complete certain projects begun by the Office of Scientific Research and Development, to keep alive some and to begin still others.

Thus the committee on artificial limbs had been obliged to assume heavy responsibilities for the supervision of contracts with industrial organizations, for the procurement of artificial limbs and for their testing. This was necessary, for a time, in order that the notable scientific accomplishments of the committee could be brought to a stage in which they would be of benefit to amputees. During this past year, however, it has been possible to recast the functions of the committee by having the Veterans' Administration assume the responsibility for the construction, procurement, and testing of these new types of prosthetic devices. The members of the National Research Council Committee were thus freed of such details and enabled to assume their proper role as scientific leaders, advisers, and critics. This is but one instance of our efforts to avoid large-scale administrative operations which can be done better by other agencies and which distract the Council from its primary scientific objectives.

In some cases extensive operations by the Council, on a continuing basis, are necessary in order to further scientific research or to translate the results of research into socially useful accomplishments. Such is the Chemical-Biological Coordination Center, which has been established during this year.

Whether such activities are temporary or permanent the Council has at present two policies regarding them. The first is that the members of the responsible advisory committee should be relieved of as many duties as possible by an adequate scientific and administrative staff which is on a full-time or part-time basis. The second is that any undertaking sponsored by the Council should satisfy the criteria that it furthers science or provides an opportunity for scientists to strengthen the national defense and contribute to the public welfare through the use of science. In these days of transition it behooves the Council to bear in mind that its usefulness and success will depend upon the avoidance of activities which are not appropriate to its functions as well as upon those which it undertakes.

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The Council has, nevertheless, a responsibility to be sufficiently adventurous in seeking opportunities for leadership and useful action in all fields of science. It is more than a waiting agency through which governmental and private organizations may seek assistance from the scientists of the country.

As a cooperative association of scientific societies and of individual scientists the activities and achievements of the Council depend upon those societies and individuals. Accordingly, much effort was expended during the past year in establishing closer relations between the Council and its constituent societies; the services of the Council were made available to a greater number of individuals. The proposed American Institute of Biological Sciences and the Geological Institute were steps in this direction. The creation of several regional sections of the National Research Council has been considered in the hope that a wider geographical basis would increase the usefulness of the Council. More scientists are being informed of the work of the Council by the publication of many more news items in Science, in other scientific publications and in the public press.

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A third responsibility of the Council derives from the fact that it encompasses all fields of the natural sciences. This facility for dealing with a scientific problem without regard for scientific boundaries is one of the most significant and valuable characteristics of the

National Research Council. Accordingly, we have an obligation to facilitate the cooperation of scientists representing different disciplines and to facilitate the joint action of scientific societies representing different fields of science. This is especially important at a time of increasing specialization, for few scientific and social problems can be solved through one scientific approach.

Professional societies have been founded to meet the needs of specialized areas of science. On the other hand, the National Research Council was created as an agency through which various scientific societies might combine for united effort. Thus it will be possible for the Council to develop activities which encompass several fields of science such as physics and biology, psychology and engineering, or mathematics and medicine, to mention only a few. Thus, too, the Council will be better able to aid scientists to combine their resources in dealing with practical problems of national importance.

Because of these considerations, much thought has been given during the past year to means whereby the Council may be of greater assistance to the American Institute of Physics, the American Chemical Society, the American Psychological Association, and to the question of how they and the Council may be better integrated. Here it is worthy of comment that the Council has, during this year, encouraged the request of representatives of numerous specialized societies in the fields of biology and agriculture that the Council assist in the formation of the American Institute of Biological Sciences. Furthermore, the Council has agreed to create such an Institute within the Division of Biology and Agriculture, if it is supported by a sufficient number of societies. It has been suggested that the cooperation of relatively unrelated societies within the Council may be weakened by the combination of societies into institutes and associations. On the contrary, suitable arrangements between the Council and these organizations can strengthen the relationships between the Council and its constituent societies. Thus established within the Council, the proposed Institute would be well fitted to relate all aspects of biology to other fields of science.

In these days of rapid social change there is an especial need for the development of close relationships between natural scientists and social scientists, humanists, and educators. Many of the scientific problems with which we deal have important social and humanistic implications; their study and solution require the combined attention of representatives of these several fields of scholarship. Accordingly, the creation of the Conference Board of Associated Research Councils has provided the National Research Council with an agency through which it can relate its activities to certain undertakings sponsored by the American Council of Learned Societies, the American Council on Education, or the Social Science Research Council. Periodical meetings of the conference board have developed plans for joint projects of importance to the Nation and of common interest to all scholars.

Such an activity of especial significance is the survey of specialized manpower which is about to begin under a grant from the Rockefeller Foundation. Modern American society requires, for its operation and improvement, a large number of men and women who are more or less highly trained in the many fields of learning represented by our four councils. It is the purpose of this survey to estimate the number of those who are potentially capable of being thus trained, the means whereby they can be identified, the requirements for their training, and related problems.

Also of interest is the recent grant from the Carnegie Corporation of New York of funds for a trial fellowship program proposed by the Social Science Research Council and our Council for the advanced training of natural scientists in a related field of the social sciences. Through this training it is hoped to develop a few leaders who will be able to deal with problems which require scholarly competence in both fields of science.

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The greatest responsibility of the Council is to further the scientific work of scientists. But there is a constant danger that the Council may, in fulfilling its obligations to governmental and private agencies and to the armed forces, actually impede scientific discovery. Also, the indiscriminate multiplication of committees and their too-long continuation make unjustified demands upon the efforts of scientists. Accordingly, it is well for us to bear in mind that the Executive order of 1918 includes among the duties of the Council:

> To promote cooperation in research, at home and abroad, in order to secure concentration of effort, minimize duplication, and stimulate progress; but in all cooperative undertakings to give encouragement to individual initiative, as fundamentally important to the advancement of science.

In order to avoid making unjustified demands upon the scientists of the country, the Council has during the past year attempted to eliminate all unnecessary committees. It is also our policy to provide capable executive officers for major activities. The work of the committees will thus be facilitated and the members of the committees will be further protected against the burdens of administration.

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One of the most important activities of the Council directed toward the furtherance of research is the fellowship program.

For over 25 years the Rockefeller Foundation has provided the funds for the National Research Council fellowships in the physical and biological sciences and in medicine. More than $5,000,000 has made possible one or more years of postdoctoral research training for over 1,200 men and women. The significance of this undertaking is demonstrated by the achievements and the present scientific positions of past fellows.

An important feature of this undertaking is its cooperative character. The Rockefeller Foundation has provided the funds; the National Research Council has selected the fellows and administered the fellowships; the universities have provided the advanced research training. Thus, the Rockefeller Foundation has enabled the scientists of America to select and train their own successors. The merits of such a relationship are being widely recognized. As a consequence of this, Merck & Co., Inc., has given the Council $100,000 during the past year for postdoctoral fellowships in the related fields of biology and chemistry; the Radio Corp. of America has provided funds for a series of predoctoral fellowships for training in electronics. New fellowship boards have been created for the selection of Merck and RCA fellows and for the administration of the two programs.

The formation of an additional fellowship board for each fellowship program insures that the selection of fellowship applicants and fellowship policies will be under the control of individuals intimately concerned with each area of science. The introduction of such a policy has the further advantage of reducing the demands for time made upon the scientific members of the boards. This is in keeping with the policy of spreading the work of the Council over as many individuals as possible. Also, in order to conserve the time of those who serve the Council in this important type of activity, plans have been formulated for the establishment of a fellowship office within the secretariat of the Council.

In addition to the training of young scientists for research there are many problems related to scientific personnel with which the Council is concerned. Increased financial support for research at a time when the supply of trained scientists is depleted, the growing and competing demands for scientists in many areas of our complex civilization, and the location and effective utilization of scientific specialists with unique qualifications are some of the problems which fall within the province of the National Research Council. The increasing range and urgency of such problems during the past year has led to the expansion of the Office of Scientific Personnel which was created in 1941. Thus strengthened, the Office has been able to advise governmental and private agencies and to conduct many fact-finding surveys. This has led to the formulation of important policies and to the definition of important issues.

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The furtherance of scientific research by the Council may be described under three additional categories: It fosters the contacts between investigators in related fields not served by scientific societies; it collects and disseminates scientific information; it secures funds and otherwise facilitates research undertakings.

The first type of activity is illustrated by three new undertakings of the Division of Mathematical and Physical Sciences begun during this year.

The scope and activities of an earlier committee on radioactivity have been expanded under a committee on nuclear science which, with its twelve subcommittees, includes representatives of chemistry, physics, geology, biology, and medicine; a newly organized committee on solids includes in its membership physicists, chemists, physical chemists, metallurgists, crystallographers and ceramists; and a committee on high-speed calculating machines is composed of mathematicians, physicists, and electrical engineers.

For over 25 years the Highway Research Board has been an example of how the Council can aid research and development by the collection and dissemination of information. It has served the needs of hundreds of members, of industrial associations, and of Government officials.

A new agency for the collection and dissemination of information begun during this year is the Chemical-Biological Coordination Center. The purposes of this undertaking are to secure samples of new chemical compounds, arrange for tests of their biological action, and tabulate by machine methods their physical, chemical, and biological characteristics. To achieve these objectives a staff of scientists and assistants is operating under funds provided by governmental and private agencies, with the advice of an advisory committee and subpanels including more than 80 members.

The American Registries of Pathology constitute a similar function assumed by the Council during this year. For a number of years the Division of Medical Sciences has stood in an advisory relationship to these Registries, which are maintained in the Army Institute of Pathology, and from time to time the Division has been instrumental in obtaining funds for their support. In the early winter of 1946 the committee on pathology of the Division of Medical Sciences took over the administration of the Registries which play a very important role in the exchange of observations and information in the field of pathology.

Throughout its history the Council has investigated the financial needs for the support of research in many areas of science; furthermore, it has secured and distributed funds for such purposes. The committee on research in endocrinology and the committee for research in problems of sex have been well-known examples of this type of activity.

A new undertaking in this category is the Pacific Science Board. At the close of the previous year a Pacific Science Conference was held for the purpose of considering the opportunities and needs for scientific research in the Pacific areas created by the new political situation. In order to translate the recommendations of this Conference into action a Pacific Science Board, under a full-time director, has been organized during this year within the secretariat of the Council.

Up to now the major activity of this Board has been devoted to anthropological studies in Micronesia. Because such studies are of direct value to the United States Navy, which is charged with the administration of this area, the Office of Naval Research allocated $100,000 for these studies; because these investigations are of fundamental scientific interest, approximately $40,000 was contributed from private sources. The resulting coordinated investigation of Micronesian anthropology project will provide funds and facilities for 44 anthropologists from 21 universities and research institutions to carry on field work on various of the islands of Micronesia for an average period of 6 to 7 months. In addition to its contribution of funds, the Navy Department will provide transportation for scientists outside the continental limits of the United States as well as certain facilities on the islands.

The project in anthropology to which we have just alluded illustrates how the National Research Council can further the fundamental research of individual scientists while serving as an agency of contact between scientists and the Government.

Another example of this is the committee on atomic casualties which was established during this year. Questions of great social and scientific significance relate to the biological effects of the atomic bomb explosions in Japan. At the request of the President of the United States, the National Research Council has formed a committee on atomic casualties in order to make immediate and long-range studies of the effects of the radiations from the atomic bombs on humans, on animals, and on plant life. The Atomic Energy Commission will provide the funds for an adequate staff of investigators; the committee of the Council will provide the scientific guidance. Through this study, invaluable data of basic significance in pathology, genetics, and general biology will be derived while the important practical questions are being answered.

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Some of the problems confronting society and Government do not further the fundamental scientific research of those scientists who achieve the solutions. Nevertheless, such problems present the scientists of the country with a challenging opportunity, and enable the National Research Council to fulfill its obligation—

> to serve as a means of bringing * * * investigators into cooperation with scientific and technical services of the War and Navy Departments and with those of the civil branches of the Government.

To meet these obligations the Council has increased the scope and activities of the medical advisory committees to the Surgeons General of the Army and Navy Departments and to the Chief Medical Director of the Veterans' Administration of the Division of Medical Sciences, and the committee on quartermaster problems of the Division of Engineering and Industrial Research. Of especial significance in this connection are the committees on artificial limbs and on sensory devices. Through the cooperation of scientists representing various fields these committees have applied science in the development of instrumental aids for war-wounded veterans and have thus made contributions of great humanitarian value.

There is another type of committee which serves the scientific needs of the armed forces and maintains intimate relations between civilian scientists and military personnel. Through such committees as the committee on undersea warfare, which has been established this year, and the committees on aviation medicine and aviation psychology the Council is helping to prevent the scientific isolation from which the armed forces suffered following the First World War. Through the day-by-day work of the staffs of those committees, through the advisory services of the committee members by means of frequent and largely attended symposia on significant scientific problems the committees satisfy the present needs of the services and keep a large number of scientists prepared for immediate service in case of national emergency.

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At a time when we face serious problems concerning the financial support of scientific research, it is reassuring to find that great numbers of private citizens contribute directly, as well as through taxes, to the furtherance of science. The American Cancer Society and the National Foundation for Infantile Paralysis are but two of many organizations which provide the opportunity for millions of individuals to participate in the advancement of human welfare through science. Those who thus give to the support of research have the right to expect that their contributions shall be wisely distributed and utilized according to the best scientific criteria. Accordingly, the National Research Council has welcomed the opportunity to act as a scientific trustee for the many who give to the support of research. Thus the committee on growth of the Division of Medical Sciences and its many panels have advised the American Cancer Society on the expenditure of several millions of dollars for scientific investigations. The building research and advisory board of the Division of Engineering and Industrial Research has been organized during this year to stimulate, coordinate and disseminate the results of research, which it will do under funds provided through the United States Chamber of Commerce.

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In these days of world-wide destruction and reconstruction and of consequent international stress, it is well to recall that one of the directives in the Executive order establishing the National Research Council charged us "to provide cooperation in research at home and abroad." As we decry the scarcity of scientists to meet the needs of modern civilization it is well to realize that many able scientists in war-devastated and impoverished countries are unable to carry on their work because they lack the facilities for research. Accordingly, the National Research Council has, during the past year, made strenuous efforts to promote the rehabilitation of science. A committee on UNESCO was appointed, and that committee vigorously cooperated with the organization of the United Nations devoted to education, science, and culture in the rehabilitation of science and in the use of science for the promotion of peace. A Committee on International Scientific Unions was created to aid in the reconstitution of existing unions and to cooperate with United States scientists who are active in the establishment of various new unions. Of especial significance is the development of close relations between the Council and the State Department. Through these relations the Council is giving to the Government expert advice on scientific problems affecting all international relations of our Government and is bringing to the scientists the advice of the State Department relating to the international problems of science.

When all is said and done, the greatest service of the Council in this area of international relations is the assistance it can give in facilitating the free movement of scientists between the United States and other nations, and in the continued development of scientific friendships. The meeting of the National Academy of Sciences with representatives of the academies of science throughout the world, which was held this year with the assistance of the National Research Council, is a distinguished example of the value of such personal associations.

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In this year of transition, the National Research Council has again appeared as a powerful agent for the furtherance of scientific research, for the development of our national security and for the translation of scientific knowledge into socially useful achievements. If the Council is to fulfill these opportunities, it will require the continued service of the scientists for whom the Council was created.

GENERAL ACTIVITIES

Fellowships.—The postdoctoral fellowship programs administered by the National Research Council constitute an activity of which the Council may be justly proud. The earlier programs were established through grants from the Rockefeller Foundation, the first of which, for physics, chemistry, and mathematics, began in 1919, followed in 1922 by fellowships in the medical sciences and in 1923 in the biological sciences. Support by the Foundation has continued throughout the succeeding years, and the opportunities thus afforded for advanced training of highly qualified young scientists have contributed immeasurably to the scientific competence of the Nation. Many past fellows of the National Research Council have won high recognition for achievement in research, both at home and abroad, and bear witness to wise selection on the part of the several fellowship boards. In 1937 the administration of the fellowships in physics, chemistry, and mathematics and in the biological sciences was combined under a single fellowship board known as the National Research Fellowship Board in the Natural Sciences, and the program was expanded to include all of the fields of the natural sciences.

Later additional fellowship programs were added, to wit, in virology, orthopedic surgery, neurology, epidemiology, and pediatrics, supported by grants from the National Foundation for Infantile Paralysis, Inc.; in anesthesiology, supported by the American Society of Anesthesiologists, Inc.; and Welch fellowships in internal medicine available to more mature workers, supported by the Rockefeller Foundation. All of these are administered by the Medical Fellowship Board.

In fields of the natural sciences, through grants from Merck & Co., Merck fellowships for advanced training in chemistry and biology were established in 1947, and a series of predoctoral fellowships for training in electronics has been established under a grant from the Radio Corp. of America. Fellows appointed under these grants will not become active until after July 1, 1947.

In addition to fellowships administered by the National Research Council, the committee on growth of the Division of Medical Sciences reviews applications and recommends the award of fellowships which are administered by the American Cancer Society.

At the annual meeting of the National Research Fellowship Board in the Natural Sciences in 1946, 39 applications were considered and 19 fellowships were awarded for work during the academic year 1946–47 (2 in astronomy, 6 in biology, 3 in chemistry, 2 in mathematics, 1 in paleontology, and 5 in physics).

During the spring and summer of 1946, the Medical Fellowship Board reviewed 64 applications for work during the academic year 1946–47, and awarded a total of 30 fellowships, of which 10 were of senior grade. In the postdoctoral group, nine were appointed in the medical sciences, five in virus diseases, four in orthopedic surgery, and two in anesthesiology; in the senior group, four were Welch fellowships in internal medicine, four in pediatrics, and three in virus diseases.

The Chemical-Biological Coordination Center.—The Chemical-Biological Coordination Center was organized on July 1, 1946. It succeeds the National Research Council Insect Control Committee. In addition to continuing the assembly of information on insect and rodent control problems the program has been expanded broadly to include a general study of possible relations of structure of chemical compounds to their biological activity.

Pertinent information in World War II reports and in the open literature is being organized so as to be available to scientists generally. In addition, the center is sponsoring the preliminary testing (screening) of new and old chemical compounds which are being solicited from investigators in university and industrial laboratories. Nine Government or nonprofit laboratories are cooperating in this program by determining the biological activity of the compounds submitted to them by the center. The data obtained as a result of the screening program will be incorporated into the files for use by interested investigators.

To facilitate the organization and correlation of the assembled data chemical and biological coding systems are being developed which should enable the data to be placed on punched cards for sorting by means of standard-type business machines.

Financial support of the Chemical-Biological Coordination Center for the fiscal year 1946–47 has been provided by the American Cancer Society, the Navy Department (Office of Naval Research), and the War Department (Air Surgeon, Chemical Corps, Corps of Engineers, Surgeon General, and Quartermaster Corps).

Office of Scientific Personnel.—During the year 1946–47 the activity of the Office of Scientific Personnel has continued to expand. It has been called upon by a number of governmental agencies for information and advice concerning problems relating to the supply, demand, training, and utilization of scientific personnel.

In the autumn of 1946 the President established a Scientific Research Board to study and report upon the role of the Federal Government in scientific research, the scientific resources of the country, and the Government's responsibility in regard to increasing these resources. The Office of Scientific Personnel has played an important part in furnishing this Board with information dealing with the supply and distribution of scientists, enrollments in colleges and universities, the graduate schools, membership in scientific societies, and the shifting of employment among scientists. The Director of the Office has attended frequent meetings of groups advisory to the President's Board and has responded to requests for advice and assistance regarding the nature and content of the Board's report.

The Conference Board of Associated Research Councils, representing the American Council of Learned Societies, the American Council on Education, the Social Science Research Council, and the National Research Council, collaborated in a study of the faculty problem in a number of selected institutions. Thirty colleges and universities cooperated in this undertaking by furnishing information which was incorporated into a comprehensive report by the United States Office of Education, the President's Commission on Higher Education, and the Office of Scientific Personnel. The information contained in this report comprises a significant portion of the final report presented to the President by the Commission on Higher Education.

The Office has undertaken to assemble, from available sources, a complete list of scientists with advanced training in the United States. For many research programs under the armed services, however, there is need for a greater degree of assurance of the high qualifications of scientists to be employed than could be determined from so all-inclusive a list. To meet this need, the Office has instituted the preparation of a key roster of especially qualified research workers to be available to the Army and the Navy and to other Government agencies. Many groups, both public and private, concerned with problems of national security, public health, medicine, and natural resources have expressed interest in the development of this key roster. It is apparent that the need for such information is great, and the Office is making every effort to expedite the completion of the roster.

At the request of the War and Navy Departments, the Office has undertaken a study of the personnel situation in laboratories under contract with the Government for research in connection with guided missiles. A confidential report has been completed for circulation only to the services, and an unclassified report for more general distribution is in preparation in consultation with the Joint Research and Development Board. This report will contain interesting information concerning the utilization of scientific personnel in the guided-missile program.

Early in 1946, at the suggestion of the Carnegie Corporation of New York, and with financial support from that corporation, the Office of Scientific Personnel undertook a study of the undergraduate origin of successful candidates for the doctor's degree in the sciences over a 10-year period, in order to determine the role of the various types of educational institutions in producing candidates for training in the scientific disciplines.

In view of the possible discontinuance of the National Roster of Scientific and Specialized Personnel, it has appeared to be desirable to investigate the resources of the Nation other than the National Roster for information on highly trained and qualified personnel. Accordingly, the Conference Board of Associated Research Councils in 1946 established a committee on specialized personnel which instituted under the direction of the Office of Scientific Personnel a study of practices in collection and maintenance of information on highly trained and specialized personnel in the United States. The report of this study has been completed and is being given wide distribution.

The Joint Committee on Specialized Personnel has interested itself also in the problem created by the accelerated demand for highly qualified personnel. Little attention appears to have been given this problem in relation to the resources of our population of highly competent youth for training. A proposal was prepared for an exhaustive study of this general problem, which is being carried out under a grant of $20,000 from the Rockefeller Foundation.

The Director of the Office has served as chairman of the Advisory Committee on Scientific Personnel of the Civil Service Commission. This committee, composed of high-ranking scientists in those Federal agencies most concerned with scientific research, has met regularly for the past 18 months and has furnished advice and recommendations to the Civil Service Commission on many problems relating to scientific personnel.

During the past year the Office has continued to receive financial support for its administrative expenses from the American Chemical Society, the American Institute of Physics, the American Mathematical Society, the American Psychological Association, the Geological Society of America, and the National Academy of Sciences. In addition, special activities have been supported by the Carnegie Corporation, the President's Scientific Research Board, the President's Commission on Higher Education, and the War and Navy Departments.

American Geophysical Union.—During the fiscal year 1947, the American Geophysical Union (the executive committee of which is the National Research Council committee on geophysics) continued its substantial growth, and its increasing service to geophysics. The membership increased from 2,741 on July 1, 1946, to 3,171 on June 30, 1947. An edition of 3,500 copies of the Transactions was published during the year just closed; as this number did not meet requirements, an edition of 4,500 has been ordered for the last three numbers of the calendar year 1947. The first list of members published since 1943 was included in the April 1947 issue.

The service of the union as a vehicle for the dissemination of geophysical information has increased, not only through growth in membership, but also through the reestablishment of international relations, and the transmission of the Transactions to leading scientific libraries the world over.

The American Geophysical Union has continued to serve in a consulting capacity, not only the National Research Council, but wherever the need has arisen. The vocational booklet, Geophysics as a Profession, was released in May 1947 by the National Roster. On this the union collaborated actively. It has assisted the Civil Service Commission on various questions. It has participated in two conferences on the United Nations Educational, Scientific, and Cultural Organization; one at Philadelphia, and the other at Denver. Representatives were sent to the Fourth Assembly of the Pan-American Institute on Geography and History and the Third Pan-American Consultation on Cartography held in Venezuela in August 1946. The union is now actively engaged in furthering the plans for the Eighth General Assembly of the International Union of Geodesy and Geophysics to be held in Oslo, Norway, in August 1948.

The twenty-seventh annual meeting of the Union was held in Washington, D. C., April 28–30, 1947, with over 800 registrants and well over a thousand in attendance at the several sessions. The ninth award of the William Bowie medal was made to F. A. Vening Meinesz of the Netherlands.

The nineteenth and twentieth regional meetings were held respectively at Pasadena, Calif., on February 15, 1947, and at Portland, Oreg., April 21–23, 1947, and plans are well under way for the twenty-first such meeting, to be held in New England in mid-September 1947.

New officers were elected by mail ballot for the first time, in March 1947, for the triennium beginning July 1, 1947. These are: President, Oscar E. Meinzer; vice president, H. U. Sverdrup; general secretary, K. Hilding Beij. John A. Fleming, who as general secretary since 1925 did so much for the upbuilding of the Union and of geophysics, has been elected honorary president for life.

The work of the various scientific committees has again become more active in this postwar period, and substantial progress has already been reported.

In January 1947, the office of the American Geophysical Union, long located at the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, moved to quarters in the Administration Building, Carnegie Institution of Washington, 1530 P Street NW., Washington 5, D. C.

Patent policy survey.—In July 1946 the National Research Council initiated a comprehensive study of the policies, procedures, and practices of educational institutions and nonprofit research organizations in the handling of patentable results of research, including a review of the experience of these agencies with particular reference to problems encountered in the administration of patents and of patentable discoveries and inventions. During the past year the director of the survey, Dr. Archie M. Palmer, has visited personally more than 80 institutions located in 29 States and Canada; through these visits and through correspondence a great deal of data have been assembled.

A number of chapters for the final report have been prepared in draft and submitted for criticism and suggestions to the committee on patent policy. Funds with which to meet the cost of the undertaking have been contributed by the Research Corp. of New York.

Committee on undersea warfare.—At the request of the Navy Department the Research Council organized, in the fall of 1946, a committee on undersea warfare to consult with and advise the Navy on scientific and technical problems relating to undersea warfare. The committee has been requested to review, analyze, and evaluate the Navy Department's broad program of research and development in undersea warfare, to propose additional fields of investigation applicable to the subject, and to collect and disseminate scientific information in pertinent fields. In order to stimulate the interest of civilian scientists in the problems facing the Navy in undersea warfare, the committee has undertaken the sponsorship of a series of symposia on undersea warfare, originally inaugurated jointly by the Navy and the National Research Council in September 1946. The committee operates under the chairmanship of Dr. John T. Tate of the University of Minnesota, with Dr. Gaylord P. Harnwell of the University of Pennsylvania as vice chairman and Dr. John S. Coleman as executive secretary. In addition to the physical sciences, the membership of the committee includes representatives from the fields of medicine, psychology, and biology.

Pacific Science Board.—The Pacific Science Board was organized by the National Research Council in 1946, under the chairmanship of Dr. Knowles A. Ryerson of the University of California. Headquarters of the Board have been established in the Research Council Building in Washington, with Mr. Harold J. Coolidge, Jr., as full-time executive secretary. While the primary function of the Board is to serve in an advisory capacity, during the year 1946–47 it has engaged actively in two scientific research undertakings in cooperation with administrative authorities of the trust territory of the Pacific islands, assisted by grants from the Office of Naval Research, private institutions, and individuals.

The terms of reference established for the Pacific Science Board by the Pacific Science Conference held in 1946, comprise 12 printed pages of recommendations. Many of these were long-range projects which would require widespread cooperation and financial support to which the Board could only lend encouragement. One of these, however, involving studies of systems of land tenure and property concepts in Micronesian culture, has been included among the objectives of the Board's coordinated investigation of Micronesian anthropology.

The more than 1,400 islands and atolls of the trust territory in Micronesia are scattered over an ocean area two-thirds the size of the United States. The objectives of the Coordinated Investigation of Micronesian Anthropology were not only to help fill a gap in our scientific knowledge of the Marshalls, Carolines, and Marianas which have been virtually closed to western scientists during their 30 years of occupation by the Japanese, but also to answer the pressing need of the Navy for basic information that would assist them in setting up adequate and practical civilian government in that area. This involves the problems of rehabilitation, health, and welfare of some 51,000 native inhabitants on these widely scattered islands. Many of these groups have separate cultures involving linguistic, social, and economic differences. Forty-two individuals drawn from twenty-one widely scattered universities and research institutions have been selected for field work in the several islands. The Navy has furnished transportation for scientists outside the continental limits of the United States as well as certain facilities, and the project is supported financially by the Office of Naval Research and by grants from the Viking Fund. Dr. George P. Murdock, a member of the Board and professor of anthropology at Yale University, has acted as coordinator of the project and has been in charge of the Yale University field team which has been operating on the atoll of Truk.

Another study which has been carried on under the direct supervision of the Pacific Science Board is a study of the problem of insect control for Micronesia. An economic survey of the islands made by the U. S. Commercial Company in 1945 revealed that the Rhinoceros and Coconut Beetles were causing heavy damage to the coconut crops, and that the giant African snail, which was introduced into many of the islands by the Japanese as a source of food, destroyed most garden crops as soon as they began to sprout. In response to a request from the Chief of Naval Operations received in May 1947, for assistance in meeting this problem, the Board set up an insect control committee for Micronesia under the chairmanship of Dr. C. E. Pemberton of the Hawaiian Sugar Plant Association. This committee is preparing to recruit the services of a number of qualified entomologists for work in the area.

During the year the Board has reviewed a large number of proposals from universities, research institutions, and individuals wishing to carry on researches in the islands of the Pacific. Eight such proposals have been endorsed by the Board and certified to the Navy Department for approval and permission to conduct investigations in the area of the Pacific under its control. The Board is also requested to review proposals for research by Government agencies.

Survey of neurobiology.—The committee of the National Research Council which was organized to survey the present status of knowledge and the trends of research in the broad field of neurobiology is now organizing its final report. This report is being formed to give an integrated view of advances and unknown areas in the neurological aspects of all fields of biology and medicine; to emphasize the relatively unrecognized associations of neurobiology with the physical and social sciences and to stress present needs and opportunities for research in this subject.

Perhaps the most important conclusion that is emerging from this survey is that which stresses the scarcity of funds and competent workers in neurobiology compared with many other fields of biology and medicine. The spectacular nature of certain types of research now largely supported by governmental agencies and the obvious urgency of certain lines of medical investigation are in part responsible for this condition. It is also due to the fact that advances in neurobiology are primarily dependent upon exploratory research which is not adequately valued in these days, according to the survey. But the survey emphasizes the fact that neurobiology is of basic importance to many areas of science which are more adequately supported.

Committee on problems of deafness.—With the exception of the subcommittee on the effect of group hearing aids, the committee on problems of deafness and its subcommittees have been inactive during the year 1947–48, and plans are under consideration for the reorganization of this committee and the discontinuance of the inactive subcommittees.

Under the direction of the subcommittee on group hearing aids, of which Dr. Harvey Fletcher of Bell Telephone Laboratories is chairman, two sets of electroacoustic apparatus are under construction at the Central Institute for the Deaf in St. Louis for use in this study. These sets will be installed in special acoustically treated classrooms, one at Central Institute and one at Clarke School for the Deaf at Northampton, Mass. There they will be under constant analysis to determine their acoustic limitations, practical drawbacks in the operation of the apparatus, and ways in which it can be improved.

Committee on applied mathematical statistics.—The committee on applied mathematical statistics has continued activity during the year under the chairmanship of Dr. L. P. Eisenhart. A report prepared by the subcommittee on mathematical statistics upon personnel and training problems created by the recent growth of applied statistics in the United States, published in May 1947 as No. 128 in the Research Council's reprint and circular series, has been distributed widely to colleges and universities throughout the country.

CONFERENCE BOARD OF ASSOCIATED RESEARCH COUNCILS

The National Research Council, through a Conference Board of Associated Research Councils, maintains close relationships with the American Council of Learned Societies, the Social Science Research Council, and the American Council on Education. During the year the Board has held four meetings and has undertaken a number of studies of interest to two or more of the associated councils. In addition to those relating to problems of personnel, which are referred to in the section of this report concerned with activities of the Office of Scientific Personnel, the following are a number of activities of the Board in which the National Research Council has participated:

Joint committee on history of science in the United States.—The committee on history of science in the United States met at Williamsburg, Va., in January 1947, and approved in principle a statement of its general objectives as follows:

> To trace the history of the sciences in this country, including the European background of native developments, in such a way as to interpret the influences exerted by American culture on science and that exerted by science on American culture. A secondary purpose will be to throw further light, whenever possible, on the history of the sciences as such. The volumes will be aimed at educated laymen as well as the scholars and scientists, and authors will be urged to make their contributions as readable as is consistent with the nature of their material.

Stress will be laid on the natural sciences and technology and the relations of these to the framework of general history. Funds with which to meet the cost of such a history, which it is estimated will be in the neighborhood of $60,000, have not yet been made available.

Joint committee on the measurement of opinions, attitudes, and consumer wants.—This committee was set up in 1945 to consider such problems as sampling, interviewing, use of panels, questionnaire construction, and validity of replies from respondents, which arise in Government surveys, market research surveys, public-opinion polling, and surveys for consumer-product testing and standardization.

Activity in all of these fields has grown rapidly since about 1935, and for some time it has been the opinion of individuals in these fields that it would be desirable to have an authoritative committee set up to deal with the problem. Early in its deliberations, plans for three projects to be undertaken were determined upon: (1) a study of the reliability of sampling procedures, (2) a study of the reliability and validity of interviewing procedures, and (3) a study of the reliability and validity of consumer-panel procedures. Activity during the past year has centered upon the sampling project which, supported by a grant of funds from the Rockefeller Foundation, is well under way under the direction of Prof. F. F. Stephan of Cornell University.

LIBRARY

The eighth edition of Industrial Research Laboratories of the United States was off the press in November 1946 after a delay of several months due to printing conditions. An edition of 4,000 was ordered and during the first 6 months (to June 30, 1947), 3,200 were distributed, the majority through sale.

In November 1946, the library cooperated with the editorial office of Chemical Abstracts in compiling, as a part of the List of Periodicals Abstracted by Chemical Abstracts, the Key to Library Files. The data compiled by the library concerned the more than 6,000 periodicals in the list as they were currently received in 280 libraries of the United States, Canada, Hawaii, and Puerto Rico. The list appeared in the December 1946 number of Chemical Abstracts and reprints are available from that office for $1 a copy. In order to complete the survey within the month of November it was necessary to employ a number of temporary clerks, an expense which was assumed by Chemical Abstracts. At least half the time of the librarian and the assistant in the library was given to the project during that month as well as volunteer help from other offices.

Work on the fifth edition of the Handbook of Scientific and Technical Societies and Institutions of the United States and Canada was begun in May 1947. Questionnaires were mailed in June and the prompt replies indicated that the new edition would be completed early in 1948. The Canadian section was prepared by the National Research Council, Canada, but the cost of publication of the handbook, which appears as a bulletin of the National Research Council, United States, was assumed by this organization.

The increase in the number of books borrowed through the NRC library from other libraries in Washington and outside of the city was greater than in any previous year. Operating as a limited reference library, the cooperation extended by the Washington libraries is of inestimable service to the staff of the Council.

PUBLICATIONS

The following publications from the Council or sponsored by its divisions and committees were issued during this period:

BULLETINS

No. 113. Industrial research laboratories of the United States, including consulting research laboratories. Eighth edition. Compiled by Callie Hull with the assistance of Mary Timms and Lois Wilson. September 1946. 415 pages. $5.

No. 114. Proceedings of the Pacific Science Conference of the National Research Council. Held at National Academy of Sciences, Washington, D. C., June 6–8, 1946. September 1946. 79 pages. $0.50.

REPRINT AND CIRCULAR SERIES

No. 127. The shortage of professional workers in agriculture and in forestry. Report of the Committee on Training of Research Workers in Agriculture and in Forestry. April 1947. 20 pages. $0.25.

No. 128. Personnel and training problems created by the recent growth of applied statistics in the United States. A report by the Committee on Applied Mathematical Statistics. May 1947. 17 pages. $0.25.

PUBLICATIONS OF THE HIGHWAY RESEARCH BOARD

Highway research abstracts (10 issues during the year; mimeographed). Subscription, $3 a year.

Proceedings of the Highway Research Board, Twenty-fifth annual meeting, 1945. Published 1946. 618 pages. $5.

PUBLICATIONS OF THE AMERICAN GEOPHYSICAL UNION

Transactions of the American Geophysical Union. Volume 27, Nos. 4, 5, 6, August, October, December 1946; volume 28, Nos. 1, 2, 3, February, April, June 1947. Issued bimonthly. Subscription, $7.50 a year.

MISCELLANEOUS PUBLICATIONS

Report of the National Academy of Sciences; National Research Council. Fiscal year 1945–46. 167 pages.

Organization and members, 1946–47. May 1947. 92 pages.

Reports of many committee meetings and conferences are available for distribution, and numerous technical papers resulting from committee activities are published in mimeographed form.

PERIODICALS

Mathematical tables and other aids to computation. Quarterly. Edited on behalf of the Committee on Mathematical Tables and Other Aids to Computation, Division of Physical Sciences. Volume II, Nos. 15, 16, 17, 18, July, October 1946; January, April, 1947. Subscription, $3 a year.

OFFICERS OF THE NATIONAL RESEARCH COUNCIL, 1947–48

GENERAL OFFICERS

Chairman: Detlev W. Bronk, director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Treasurer: Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the Department of Aeronautical Engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary: Raymund L. Zwemer, National Research Council, Washington, D. C.

Business manager: George D. Meid, National Research Council, Washington, D. C.

Assistant business managers: C. L. Wade and B. L. Kropp.

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Mathematical and Physical Sciences: Chairman, R. Clifton Gibbs, professor of physics, emeritus, Cornell University; National Research Council, Washington, D. C.; vice chairman, Marshall H. Stone, Andrew MacLeish distinguished service professor of mathematics, University of Chicago, Chicago, Ill.

Engineering and Industrial Research: Chairman, Frederick M. Feiker, dean, school of engineering, George Washington University, Washington, D. C.; vice chairman, Harold K. Work, manager, research and development, Jones & Laughlin Steel Corp., Pittsburgh, Pa.

Chemistry and Chemical Technology: Chairman, W. Albert Noyes, Jr., professor of chemistry, University of Rochester, Rochester, N. Y.; vice chairman, Alden H. Emery, executive secretary, American Chemical Society, Washington, D. C.

Geology and geography: Chairman, Arthur Bevan, Principal Geologist in charge of Geological Resources Section, Illinois State Geological Survey, Urbana, Ill.; vice chairman, Lester E. Klimm, professor of geography, University of Pennsylvania, Philadelphia, Pa.

Medical Sciences: Chairman, Lewis H. Weed, National Research Council, Washington, D. C.; vice chairman, George B. Darling, director of medical affairs, Yale University, New Haven, Conn.

Biology and Agriculture: Chairman, John S. Nicholas, Sterling professor of biology and director of the Osborn Zoological Laboratory, Yale University, New Haven, Conn.; vice chairmen, George W. Beadle, professor of biology, California Institute of Technology, Pasadena, Calif., and E. C. Stakman, professor of plant pathology, University of Minnesota, St. Paul, Minn.

Anthropology and Psychology: Chairman, A. Irving Hallowell, professor of anthropology, University of Pennsylvania, Philadelphia, Pa.; vice chairman, George K. Bennett, president, Psychological Corp., 522 Fifth Avenue, New York, N. Y.

REPORTS OF DIVISIONS

DIVISION OF INTERNATIONAL RELATIONS

(DETLEV W. BRONK, chairman HARLOW SHAPLEY, vice chairman)

With gradual recovery from wartime restrictions on international relations of scientists, the Division of International Relations has been able to expand the scope of its activities.

The resumption of the work of the international scientific unions and plans for the creation of new ones are significant evidence of the renewed collaboration of scientists throughout the world. In order to facilitate the participation of American scientists and scientific organizations in the work of these unions, the Division has established a committee on international scientific unions. It is fortunate that we have been able to secure for the chairmanship of this committee Dr. John A. Fleming, who is especially qualified by virtue of his own experience in this field and his present position as president of the International Council of Scientific Unions. One meeting of this committee, comprising representatives of various fields of science, has been held.

One of the most interesting and significant of recent developments affecting the role of science in international affairs is the creation of the United Nations Educational, Scientific and Cultural Organization. It is an undertaking which is doing much to aid the work of scientists, to further the reconstruction of science in war-devastated countries and to provide an agency through which scientists can contribute their special talents in the promotion of world peace. The National Research Council has been represented on the United States National Commission for this organization, and has recently established a committee on UNESCO for the purpose of informing American scientists concerning the activities of the organization, and for the purpose of promoting the scientific aspects of the Commission and the UNESCO Secretariat which is located in Paris. Dr. Bart Bok of the Harvard College Observatory has agreed to serve as chairman of the committee.

It is a tragedy of our times that many able scientists in foreign countries are unable to carry on their research and scientific teaching because they lack apparatus and equipment. In order to study this problem and to aid in the rehabilitation of scientfiic laboratories in war-devastated countries, the Division has established a committee on scientific equipment under the chairmanship of Mr. William A. Wildhack of the National Bureau of Standards. It is contemplated that such a committee will continue to serve a useful purpose following the postwar period by facilitating the international exchange of information regarding new scientific methods and equipment and by helping to overcome barriers to the commercial sale of apparatus on terms which are favorable to the advancement of science.

An event of unusual interest and significance during this past year was the visit of representatives of 26 academies of science in sister countries to the meetings of the American Philosophical Society and the National Academy of Sciences from October 17 to 24, 1947. This international gathering was financed by generous grants from the Rockefeller Foundation and the Carnegie Corp. of New York, and was aided by this Division of the National Research Council Thirty-eight foreign scientists were in attendance at the sessions of the American Philosophical Society in Philadelphia and of the National Academy of Sciences in Philadelphia and Washington. The new and renewed associations fostered by those meetings have already resulted in the initiation of many cooperative undertakings.

There is no more satisfactory aspect of the work of the Division than the cordial relations which have been developed with the United States Department of State. Through these relationships it has been possible for the Division to aid American and foreign scientists in their travel and exchange of information, and to assist scientists to play a larger role in international affairs.

DIVISION OF PHYSICAL SCIENCES

(R. Clifton Gibbs, chairman; Arthur B. Coble, vice chairman)

Considerable time during the early part of the year 1946-47 was spent in surveying the needs and opportunities in connection with the development of an effective program of activities that could be implemented in the interests of national welfare. One guiding principle that has permeated our thinking in planning the new developments for the Division has been to encourage the scientists in the various fields to regard themselves as having an interest in and a responsibility for the work of the National Research Council, and to foster the idea that the National Research Council is not an organization centered wholly in Washington. To this end the chairman visited several universities in the Middle West early last fall where he had an opportunity to confer with staff members in the physical sciences and thus to elicit their interest in the work of the Council. Very worth-while results have stemmed from these conferences.

An effort has also been made in planning the make-up of committees to secure a broad geographical distribution of personnel and to make the committees significantly representative of the interests surrounding the various problems under consideration. Furthermore, with the full concurrence of the chairman of the Council, certain committees have been established with members drawn not only from the specific fields encompassed by this Division, but also from fields in other divisions when the subject involved could be materially advanced through such supplementary assistance and consideration.

Thus, much has been added by way of integration and representative effort in developing the program of the Division, and in this connection, it is a pleasure to record our appreciation of the cordial cooperation that we have received from the other Divisions of the Council.

International unions.—It is gratifying to be able to report the development of renewed interest and activity in the work of international unions with which this Division is or has been affiliated. It is anticipated that in another year substantial progress will have been made toward the resumption of international scientific meetings in all of those fields. For some time the entire Division of Physical Sciences has acted as the American Section of the International Union of Pure and Applied Physics. This responsibility has now been entrusted to a committee of nine members made up entirely of physicists with Dr. Karl K. Darrow as chairman, who is now one of the vice presidents of this union.

Postdoctoral fellowships.—The Division committee dealing with postdoctoral fellowships in the natural sciences gave careful consideration to the appraisal of applications in the fields of astronomy, mathematics, and physics. While not as numerous as in the years immediately preceding the war, it is gratifying to be able to report that the applicants this year were, on the whole, well qualified to undertake research studies on an independent basis. Some of the better potential candidates were doubtless drawn away by more attractive opportunities and stipends that were available elsewhere. It is fortunate that we were able to make a substantial increase this year in the stipends for these fellowships. So far as this Division is concerned these stipends are still not sufficiently high to insure the flow of some of the very best talent into this type of training, without which our future leadership in these sciences will be seriously curtailed and weakened. It is all the more serious to have this occur at a time when the need for the leadership, which such training is singularly suited to foster and promote, has become greatly expanded and critically urgent.

Line spectra of the elements.—The committee on line spectra of the elements under the chairmanship of Dr. H. N. Russell of Princeton University, began its work in 1922. In the intervening years much preliminary work and planning was reported upon from time to time. During the past year very substantial progress has been made in assembling the vast accumulation of data in form for publication as tables of Atomic Energy Levels. The preparation of these monographs is being carried on in the Spectroscopy Section of the National Bureau of Standards. Manuscript for the first section of the tables has already been submitted to the printer.

Mathematical Tables and Other Aids to Computation.—Because of responsibilities connected with the completion of war problems and other attendant demands on their time, there has been little opportunity during the current year for the committee on mathematical tables and other aids to computation to resume one of its major functions, namely, the preparation for publication of a series of reports on mathematical tables in various fields. However, plans in this connection are only partially dormant and some steps have already been taken to realine the committee's program of such publications in the light of recently available data and reports.

The quarterly journal, Mathematical Tables and Other Aids to Computation, which is edited and published by this committee under the painstaking guidance of its chairman, Dr. R. C. Archibald, of Brown University, has continued with undiminished success. It is now in its fifth year of publication, with subscriptions totaling about 588, of which nearly 150 are from England. In the deliberations of another committee dealing with high-speed calculating machines to which reference will be made later in this report the need of some medium for distribution and dissemination of information regarding the development and performance of such machines was early recognized. At a joint meeting of the two committees a plan was formulated and agreed upon for meeting this need whereby the existing quarterly journal would expand its coverage and set up a new department devoted to Automatic Computing Machinery. This plan received favorable consideration at the annual meeting of this Division in June.

The material for this new department will be edited by the staff of the Machine Development Laboratory of the National Bureau of Standards, and will make its first appearance in the October 1947 issue of the journal. An effort is now being made to enlarge the journal subscription list sufficiently to meet the increased cost of publishing more pages per issue. About 120 new subscriptions have been obtained since the annual meeting in June. It is believed the new department will not only greatly enhance the usefulness and value of this journal, but will serve to widen the subscription interest.

Nuclear science.—Several years ago a committee on standards of radioactivity, consisting of six members, was established in this Division. For reasons that seemed germane at the time but which I shall not elaborate upon here, the name of the committee was changed about a year ago to radioactive materials, then a little later to radioactivity, which continued in use until near the end of this year. Careful consideration, however, led to the conclusion on the part of all concerned that a title more suitably descriptive of the scientific coverage of the field as developed by the committee would be Nuclear Science, and that title is now in current use.

The work of this committee has been carried on by 12 subcommittees under the general chairmanship of Dr. L. F. Curtiss, of the National Bureau of Standards.

A grant of $20,000 in support of the nuclear science program has been made (under a contract) by the Office of Naval Research. It is anticipated that the Atomic Energy Commission will soon provide financial assistance in furtherance of this program. We hope also to tap other sources of assistance.

The programs of the different subcommittees are in varying stages of advancement. The subcommittee dealing with the shipment of radioactive substances has made very substantial progress in drafting specifications and regulations for shipping such material by highway, railroad, water, and air conveyances. Based on well-tested quantitative measurements that can readily be applied in commercial handling, these shipping specifications designed adequately to protect humans (handlers, operators, and the general public), other animals and merchandise (chiefly photographic film) are well on the way to adoption as official regulations by the Interstate Commerce Commission and by the Air Transport Association of America.

With a view to having these regulations acceptable for Canadian shipments and across the border, a member of the Research Council of Canada was appointed on this subcommittee and he has participated actively and most helpfully in every phase of this part of our program, and incidentally, without any draft upon our operating funds. In fact, relatively few of the members of this subcommittee have asked for reimbursement of traveling expenses.

The subcommittee on radiogeology has drawn up plans for the establishment of a pilot laboratory where suitably designed and controlled tests of the uranium and thorium contents (below security levels) could be accurately determined for specimens of earth material gathered from different geological formations over a wide area of the earth's surface and subsurface. Such a survey would provide data and information of enormous importance and usefulness in the writing of authentic geological history with a preciseness that can hardly be attained in any other way.

The preparation of a monograph on neutron measurements and standards has been started under the guidance of the chairman of that subcommittee and with the able assistance of his committee associates in a well-parceled-out program.

High-speed calculating machines.—Early in the year a committee, with Dr. John von Neumann of the Institute for Advanced Study as chairman, was appointed to study the principles and possibilities of high-speed automatic machines and the visible and potential uses of these machines.

This committee soon came to feel (at its first meeting) that an essential element in the development of its program as conceived by and assigned to it would be some medium of communication between those interested in the subject. The expansion of Methematical Tables and Other Aids to Computation furnishes a highly advantageous solution of this problem and will go far in facilitating the plans and activities of this new committee.

Applied mathematics.—Early last winter a committee under the chairmanship of Dr. Saunders MacLane of Harvard University, was appointed to consider and delineate the essential elements in a graduate curriculum at the Ph. D. level that would provide adequate preparation for highly creative activity in applied mathematics in keeping with the present and foreseeable future needs in that area. A preliminary agenda has been prepared as a basis for discussion at an all-day meeting of the committee to be held early in September.

Properties of the solid state.—An exploratory conference was called late in June to consider the desirability of appointing a committee to study and direct a program of activity in reference to the present status and future possibilities of research on properties of the solid state. The group attending the conference unanimously advised in favor of establishing such a committee and proceeded to outline a tentative program and to list possible procedures for carrying it out. As conceived, this program has far-reaching possibilities. It will involve a unified effort by scientists drawn from several of the basic and applied fields, but with the stronger emphasis on the basic side. Steps should be taken at an early date to implement such a study.

Fundamental physical constants.—Activities in this field are sponsored jointly with the Division of Chemistry and Chemical Technology, and are progressing satisfactorily. The maintenance of scrutiny and critical appraisal of new data pertaining to more precise or more accurate values of these constants should never be relaxed.

Future problems.—Continued consideration needs to be given to the selection of other fields or problems for study. Some of these, such as fluid dynamics and radiation phenomena, are already clearly in evidence.

How the field of electronics can be handled most effectively has frequently come up for consideration. In some ways it would be appropriate to have the Division of Engineering take the initiative in promoting a survey and study of this field. Perhaps some day the two Divisions can jointly sponsor such an undertaking. In the meantime, it may be well to await the outcome of studies dealing with electronics as an important phase of solid state phenomena.

Certain problems in astronomy could doubtless be materially advanced by the cooperative consideration that a committee can usually give them. An effort will be made soon to obtain from some of the leading astronomers a critical appraisal of the important problems that fall into this class. Some important problems will not qualify for a high ranking in this category. Just where the problem of the minor planets, which was recently brought to our attention by Dr. Dirk Brouwer of Yale University, should be placed in this picture is now under consideration. It is anticipated that Dr. Bok, who is scheduled to become a member of this Division, will contribute materially in clarifying the needs for astronomy.

The situation in mathematics deserves special consideration. In the opinion of the mathematicians, as reported at the annual meeting of the Division, the needed attention is not so much in the development of cooperative efforts in research. For the most part they carry on their basic investigations as individuals working alone. However, there is a considerable consensus among the mathematicians that there is a pressing need for cooperative effort of an organizational character in areas outside of basic research. The channeling of developments in applied mathematics, the promotion of renewed activity in an international union of mathematics, and the bringing of influence to bear on the administration and distribution of funds for research and fellowship programs in the field of mathematics are some of the organizational problems they have in mind. A committee consisting of Dr. Marshall H. Stone, Dr. Samuel S. Wilks, and the chairman of the Division has arranged to appraise the pertinent elements in this area and to map out some plan of action for initiating work on these problems with a minimum of delay.

DIVISION OF ENGINEERING AND INDUSTRIAL RESEARCH

(Frederick M. Feiker, chairman; Hugh L. Dryden, vice chairman)

The major activities of the Division during the year 1946–47 were in the Highway Research Board, the conference on electrical insulation, the committee on quartermaster problems, the committee on ship construction, the advisory committee on engineering publications (for Latin America), and in the two committees which were jointly sponsored by this Division and the Division of Medical Sciences—the committee on artificial limbs and the committee on sensory devices. A new board was organized under the Division, the Building Research Advisory Board, patterned after the Highway Research Board, and intended to be an information center and a correlating and coordinating agency in the field of building construction research.

Miscellaneous Division activities included cooperation with the office of the Dewey Library Classification System of the Library of Congress and with the President's Scientific Research Board. The Dewey Classification office requested and was given assistance in revising the classification systems of certain scientific and engineering sections. The President's Scientific Research Board asked the National Research Council to make an estimate of the current or recent expenditures for research per research worker in the industries of the United States, this estimate to be based on the total personnel of the research laboratories or departments, including professional personnel, technical personnel not classed as full professional, and administrative, clerical, and maintenance personnel. The Industrial Research Institute and a number of large individual research laboratories supplied data for a limited survey. The results indicated an average value for the desired factor of $5,500.

In the summer of 1946, Mr. Harold Vagtborg, president of Midwest Research Institute and a member of this Division, was designated to represent the Division and the National Research Council on the Scandinavian research and industries tour which visited Denmark, Norway, and Sweden at the invitation of the Royal Swedish Academy of Engineering Sciences, the Federation of Norwegian Industries, and the Royal Danish Academy of Sciences. On the occasion of presenting a paper on The Industrial Research Pattern of the United States before the Royal Swedish Academy of Engineering Sciences, Mr. Vagtborg was made the recipient of the Silver Medal of the Academy.

The executive committee of the Division met in September 1946 and in January 1947 and a meeting of the Division was held on March 3, 1947.

Points of major interest in the activities of the several constituent boards and committees of the Division follow:

Highway Research Board.—This Board has continued to serve with great effectiveness in the correlation and coordination of highway research. It continues also to enjoy the good will and the hearty support of the American Association of State Highway Officers, the Public Roads Administration, and of an increasingly large group of other agencies interested and engaged in highway research. Its expanded publication services and its increased staff, to which references were made in last year's report, have contributed significantly to the Board's effective operation.

The twenty-sixth annual meeting of the Board, attended by well over 700, was held in Washington, D. C., on December 5 to 8, 1946. The next annual meeting is scheduled for December 2 to 5, 1947, also in Washington.

Roy Crum, the director of the Highway Research Board was the recipient in June 1947 of an alumni award for notable accomplishment from Iowa State College.

Building Research Advisory Board.—This Board was being organized as the year 1946-47 closed. The outstanding success of the Highway Research Board played a significant part in prompting the Construction Industry Advisory Council of the Chamber of Commerce of the United States, to request the National Research Council to establish a Board to act as a central clearinghouse for information on research in the building construction field and to serve as a research correlation and coordination agency. This request came from the Unted States

Chamber of Commerce in November 1946. Preliminary conferences were held early in 1947, a draft of a prospectus for the Board was prepared and circulated to interested individuals for criticism and suggestion, and in June 1947 the Board was appointed, under the chairmanship of Dr. Frank B. Jewett, retiring president of the National Academy of Sciences.

It is planned that this Board will undertake, with respect to factual information, to list, review, and correlate results of completed research and the programs of current research activity; to disseminate information so obtained; to sponsor forum discussions of research aims and results; to foster research in relatively undeveloped areas and generally, to further the application of scientific methods for the improvement of building construction practices and materials.

Conference on electrical insulation.—This conference stands next in seniority to the Highway Research Board among the several Division groups. It has developed over a period of a little more that 20 years from a committee to a conference attended by more than 240 registrants at its last annual meeting at Johns Hopkins University in November 1946. The conference publishes each year an annual report, including abstracts of annual meeting papers, and a Digest of Literature on Dielectrics.

Action was taken by the conference at its 1946 annual meeting to put its activities, particularly its two annual publications, on a self-supporting basis through an annual registration fee for conference members.

Committee on quartermaster problems.—With the beginning of the fiscal year 1946–47 this committee became an advisory committee to the Research and Development Division of the Office of the Quartermaster General, rather than, as previously, an operating committee making subcontracts and directing the work of subcontract projects. In its advisory capacity the main committee has organized advisory subcommittees in the fields of (1) leather and footwear, (2) plastics, (3) textiles, (4) germicides, insecticides, and biologicals, and (5) environmental protection. These advisory subcommittees review, in their own particular field of interest, the research programs and individual research projects of the Office of the Quartermaster General and summarize, comment, and advise on those programs and projects.

The Transportation Corps of the War Department and the Office of Naval Research have also requested and received advisory services from the committee in certain fields. As a result, this committee has been able to effect or encourage, in these particular fields, considerable coordination of research efforts as between the services and branches concerned.

During the year Dr. L. W. Bass, who had served as chairman of this committee from its organization during World War II, found it necessary to give up the chairmanship, although continuing as a member of the committee. On the occasion of retirement as chairman, Dr. Bass was awarded the Presidential Certificate of Merit for his leadership of the Committee on Quartermaster Problems during the war research effort. Mr. F. W. Willard succeeded Dr. Bass as chairman and Mr. Raymond Stevens became vice chairman.

The following two committees—the committee on artificial limbs and the committee on sensory devices—are sponsored jointly by the Division of Medical Sciences and the Division of Engineering and

Industrial Research. Both committees are supported under a contract with the Veterans' Administration, to which the Office of the Surgeon General of the War Department contributes half of the costs.

Committee on artificial limbs.—This committee, originally the committee on prosthetic devices, was renamed during the past year and its executive office moved from Evanston, Ill., to Washington, D. C. This move was made in order to be physically closer to the headquarters of the two sponsoring agencies, the Veterans' Administration and the Surgeon General of the Army, as the research operating activities of the committee drew to a close. At the end of the past fiscal year the research program directed by the committee was terminated and the operating committee discharged. Certain uncompleted or continuing subcontract projects of the committee were transferred to direct contracts between the research agency and the Veterans' Administration. The committee on artificial limbs will be reconstituted as a somewhat smaller group to serve in an advisory capacity to the Veterans' Administration in the research and development program which the VA plans to continue.

At the final meeting of the operating committee, recommendations were made for transmittal to the sponsoring Government agencies with respect to the stage of development of several artificial arms, elbow lock and knee lock devices, hands and cosmetic gloves, cineplastic operations, artificial feet and rotating ankles, suction socket attachments, and standardization and simplification of designs.

Committee on sensory devices.—This committee completed many of its subcontract projects dealing with guidance devices of various types, with facsimile embossing devices, and with the development and adaptation of aids for partially sighted individuals. The committee did not, however, convert its operations completely to those of an advisory committee and is continuing a few projects.

Committee on ship construction.—The committee on ship construction was organized under the chairmanship of Mr. V. H. Schnee at the beginning of the year 1946–47 to serve as an advisory group to the ship structure committee, the latter a joint committee of the Bureau of Ships of the Navy, the Coast Guard, the Maritime Commission, and the American Bureau of Shipping. The committee is advising the Bureau of Ships on a group of that Bureau's research contracts dealing with the quality and behavior of ship plate steels.

Advisory committee on engineering publications.—This is a project in which the National Research Council is cooperating with the Engineers Joint Council and the Inter-American Development Commission in carrying out the objectives of a grant made to the NRC by the Office of the Coordinator of Inter-American Affairs. The purpose of this grant was to make engineering publications of the United States of America better known to the engineers of Latin America.

Some time ago copies of Engineering Index were sent to a number of Latin-American engineering centers as a part of this project. During the past year, through the cooperation of the Commission on Latin America of the International Relations Committee of the Engineers Joint Council, an editorial board composed of the editors of the five major engineering societies, the civil, electrical, mechanical, mining and metallurgical, and the chemical engineers, was appointed to select suitable articles from their several publications, such articles to be reproduced and combined in a quarterly engineering review publication entitled "Adelantos de Ingenieria." This quarterly review is now being published and distributed, under this grant, to some 25 engineering societies and engineering research institutions and to over 50 engineering schools and departments, all in Latin-American countries.

DIVISION OF CHEMISTRY AND CHEMICAL TECHNOLOGY

(LOUIS P. HAMMETT, chairman; H. MARSHALL CHADWELL, vice chairman)

During this year the Division has begun to resume its normal peacetime activities after an almost complete preoccupation with urgent wartime problems. Your present chairman, inexperienced in the affairs of the Division, and with only limited time available for its business was most fortunate in the skill and foresight which his predecessor applied to closing out these extremely important wartime tasks so that no single question arising from them has come to the attention of the Division during the current year, and in the expert knowledge and good will of Mrs. Conroy, who has served this Division devotedly for 17 years. Two urgent and troublesome problems did, however, confront the Division at the beginning of the year and have largely occupied the attention of the chairman throughout his term. These concerned the International Union of Chemistry and the Division's Committee on Tables of Constants.

The union had suspended its activities during the war, but the first steps toward a resumption were taken at a meeting held in London in July 1946 under the presidency of Professor Bogert. Unfortunately it had not been possible to obtain other representation from this country. This deprived Professor Bogert of support which he should have had and in fact left this country without any official delegation, because Professor Bogert's position as president of the union made it unsuitable for him to act also as the representative of a single country. It was therefore extremely important that the United States should be represented at the first formal postwar meeting of the union in London in July of 1947 by a widely representative and well-prepared delegation, especially since one action taken at the preliminary meeting of 1946 in our absence has seemed to many in this country to have been ill advised or at least premature. In spite of the fact that the Division lacks funds for expenses of delegates to meetings of the union and of the difficulties of travel in these days it has been possible to find a group of leading chemists representing a wide range of interests who are prepared to make the sacrifices involved in serving as our representatives at this meeting. This group consists of: W. A. Noyes, Jr., chairman of the delegation; Francis J. Curtis, Alden H. Emery, Walter R. Kirner, I. M. Kolthoff, Hermann F. Mark, Walter J. Murphy, Linus Pauling, J. W. Perry, Alexander Silverman, Edgar Reynolds Smith, Foster D. Snell, Robert C. Swain, Maj. Gen. Alden H. Waitt, and Edward Wichers. In addition, Drs. Marston T. Bogert and Robert E. Swain will attend in the capacities of president and vice president, respectively, of the union.

A meeting of such members of the delegation as could be reached was held during the Atlantic City meeting of the American Chemical Society at which all of the topics involving American interests which seemed likely to come up at the meeting of the union were discussed.

The conclusions reached have been circulated to all members of the delegation with a request for comment and criticism and will be laid before the Division.

In 1940 a committee of the Division, under the leadership of Prof. H. S. Taylor, undertook to provide that activity in the publication of Tables of Physical Constants should not be terminated as a result of the invasion of France. Under authority of such members of the union and of its Commission charged with this important activity as could be reached, the editor of the Tables Annuelles which had been published in Paris under the supervision of this Commission was brought to this country, funds were raised, volunteer collaborators enlisted, and much progress was made. With the entrance of this country into the war it was necessary to suspend most of these activities, but active planning and preparatory studies have continued throughout the war. Indeed the American investment in this project is considerable, and the interest of every scientist in the effective prosecution of work of this sort is naturally very great. With the liberation of France it developed that the executive committee charged with the publication of the Tables Annuelles had maintained itself during the occupation and felt that it should control all activities in this field, or that there was conflict of opinion and danger of duplication of effort.

In spite of the preparatory nature of the 1946 conference of the International Union of Chemistry and the lack of American representation the conference accepted the French point of view, and your chairman felt it necessary to protest this decision and to point out that it freed our committee on tables from any obligation toward the union at the same time disclaiming any intention of hampering the activities of the French executive committee.

Meanwhile information was received that the Director of the National Bureau of Standards felt that it was a proper function of the Bureau to prepare and to publish tables of the important numerical data of science, and wished to collaborate through contract with the National Research Council in this direction. A conference at the Bureau led to the following tentative agreements:

1. Professor Taylor, who had most successfully fulfilled his original undertaking of preventing a complete collapse of this important activity during the war, asked to be relieved of the chairmanship of the National Research Council committee on tables, but agreed to serve as vice chairman of a new committee.
2. Dr. Condon, Director of the National Bureau of Standards, agreed to become chairman of a new committee, broadly representative of chemistry, physics, and probably of other sciences and to nominate a member of the staff of the Bureau as executive secretary.
3. The committee would attempt to provide for publication and continued revision of critically selected numerical data in particular fields of science of which the Bureau's present activity supported by the American Petroleum Institute in the publication of data on the thermodynamic properties of hydrocarbons might be taken as the type. The number of fields to be covered would be expanded as demand and support develop.
4. The committee would be prepared to agree with any competent foreign group on steps to avoid duplication of effort and to forward collaboration.

The necessary steps toward implementation of these conclusions are under way.

The committee on fundamental physical constants (a joint committee of this Division and of that of Physical Sciences) has held a meeting in which arrangements were made for the continuing selection and report by authoritative groups of the best values of such quantities as the electron charge, Planck's constant, and the like. This important task is in excellent hands and is typical of the services the National Research Council can and should perform.

The Division's committee on fellowships received applications for 5 National Research fellowships in chemistry. It was the feeling of the committee that although the number of applications was low compared with prewar years the quality of the better men on the list was extremely high. On the basis of the committee's recommendation the fellowship board of the Council awarded four fellowships in chemistry, but two of the applicants declined in favor of fellowships from the American Chemical Society.

That the chairman has no report to make on the activities of other committees of the Division reflects his own preoccupation with the matters already reported and should not be taken as a criticism of the personnel of the committees or of the value of their functions.

As a result of widespread demand, the suspended committee on design, construction, and equipment of laboratories has been revived and Mr. H. S. Coleman of the Mellon Institute has agreed to serve as chairman. The other members, who are expected to be representative of the divisions of industrial and engineering chemistry and of chemical education of the American Chemical Society, are yet to be nominated. It is hoped that the committee will serve as a clearinghouse for the exchange of information in this field and will consider the practicability of the preparation of a new treatise to replace the Council's most valuable but now outdated volume on the subject.

DIVISION OF GEOLOGY AND GEOGRAPHY

(Arthur Bevan, chairman; Lester E. Klimm, vice chairman)

The chief objective of the Division of Geology and Geography during the first full year after the end of the war was the reorganization on a peacetime basis of all activities and research on numerous problems in fundamental and unexplored fields. The realization of this goal has lagged somewhat because of the teaching, administrative, and other research loads imposed upon qualified personnel.

At the annual meeting of the Division in 1946, under the chairmanship of William W. Rubey, consideration was given to the problem of divisional committees which were not as active as opportunity warranted, which were not advancing steadily toward the accomplishment of an allotted task within a definite period, or whose membership had not been adequately reconstituted. At that meeting plans were formulated to reorganize procedures for constituting committees and for bringing their activities closely in accord with the policies of the reorganized National Research Council.

Two joint geographic and geologic committees functioned during the year, 14 geologic and 3 geographic committees were active, and 2 new geologic committees were partly organized. Three of the geologic committees were interdivisional in scope.

INTERDIVISIONAL COMMITTEES

Committee on common problems of genetics, paleontology, and systematics (George G. Simpson, chairman).—This committee, interrelated with the Division of Biology and Agriculture, achieved several objectives during the year. A symposium, organized as a part of the Princeton University Bicentennial, was held January 2–4 at Princeton. A number of distinguished foreigners participated, in addition to the specialists from this country. The participants in this symposium were guests of Princeton University. A symposial volume, somewhat more extensive than the papers presented at the symposium, is being prepared for publication. This committee organized a Society for the Study of Evolution. An international journal has been planned, the first volume of which will be financed in part by a grant from the American Philosophical Society.

Committee on application of physics and chemistry to geological problems (J. F. Schairer, chairman).—This committee is interrelated with the Divisions of Physics and Chemistry. It made progress during the year in surveying the interrelations of the fields of chemistry and physics to geology. Emphasis is being placed through subcommittees on problems of glaciology, geomorphology, ocean bottoms, petrology, and structural geology.

Committee on application of biological methods and data to geological problems (George G. Simpson, chairman resigned; new chairman to be appointed).—This committee is also interrelated with the Division of Biology and Agriculture. Its objectives are to study the interrelations of and to correlate activities in the fields of biochemistry, biogeography, microbiology, paleoclimatology, paleogeography, petrology, and statistics.

GEOLOGIC AND GEOGRAPHIC COMMITTEES

Committee on declassification and salvage of maps and documents (Burton W. Adkinson, chairman).—This committee has the very important task of declassifying maps and documents in various governmental agencies which contain a wealth of fundamental geologic and geographic data. Much progress has been made this year. Duplicate maps and other materials have been distributed to selected library depositories throughout the country.

Committee on map sketching from aerial photographs (O. M. Miller, chairman).—Considerable progress was made in the compilation of the manual of noninstrumental methods of constructing maps from aerial photographs, which is the purpose of this committee. A uniform terminology has been adopted and notes are on hand for many of the chapters already outlined. The analysis of methods of angular orientation, which is to be the principal subject in one on the most important chapters, has received special attention.

GEOLOGIC COMMITTEES

In addition to the interdivisional committees and the joint geologic and geographic committees, described above, 12 technical geologic committees were active during the year.

Committee on advisory pamphlet for geology students (Charles H. Behre, Jr., chairman).—This committee prepared an illustrated leaflet, Careers in Geology, describing geology as a profession in terms that might attract young men and women to consider this field. It is proposed to have this leaflet printed and distributed to each high school in the Nation. Plans have been made to have this undertaking supported by technical societies and other groups.

Committee on cryptovolcanic structures (*Charles W. Wilson, Jr., chairman*).—Continued study of the Wells Creek Basin, Tenn., resulted in the conclusion that the magnetic "anomalies" reported in 1940 were a part of the regional pattern. It is not yet known whether these peculiar structures originated through cryptovolcanism or by meteoric impact. The committee was discontinued at the end of the year because it had accomplished its objective.

Committee on deformation of the Ross Shelf ice (*Walter H. Bucher, chairman*).—A structural map of the folds and fractures of the Bay of Whales region was completed. Another structural map, based on a mosaic of vertical air photographs, is being made. These two maps will give comparative data for a study of the changes produced by progressive compression between 1933 and 1940. It is expected that an analysis of the ice structure in terms of structural geology can now be prepared.

Committee on experimental deformation of rocks (*Eleanora B. Knopf, chairman*).—Work on a 5-year experimental program has been started at Massachusetts Institute of Technology by Prof. Harold W. Fairbairn. A preliminary fabric orientation study of a block of marble has been begun. Study of creep in the solid state, continuing the work of Griggs, has been planned. The work of the committee has been handicapped by the lack of availability of physicists who are qualified to do this type of work.

Committee on geologic education (*Chester R. Longwell, chairman*).—This committee sponsored conferences at the annual meetings of four societies: American Association of Petroleum Geologists in Chicago, the American Geophysical Union in Washington, the Geological Society of America in Chicago, and section E of the American Association for the Advancement of Science in Cambridge. The proceedings of these meetings have been published. The committee has canvassed the present status in education in geology and in its annual report to the Division made several pertinent suggestions for improvement.

Committee on geologic personnel (*W. B. Heroy, chairman*).—The committee has summarized the developments during the last few years with regard to the supply and demand for geologists as it seemed appropriate at this time to have a review of the effects of the war period upon the training of geologists.

Committee on marine ecology as related to paleontology (*Harry S. Ladd, chairman*).—The committee has given consideration to the preparation of a Treatise on Marine Ecology and Paleoecology. A tentative outline of the proposed treatise was published in the annual report of the committee to the Division.

Committee on the measurement of geologic time (*John P. Marble, chairman*).—A report covering the work of the committee from April 1943 to April 1946 was prepared for mimeographed publication. The Annotated Bibliography has been brought up to date. Analytical work has been in progress on several specimens. Studies on the radioactivity of mineral separates has been continued and some application has been made in the recognition of different magmas in the same region.

United States committee for the study of Paricutin Volcano (*Richard E. Fuller, chairman*).—As a result of close cooperation with the State Department and financial sponsorship by the Geological Society of America much progress was made in continuation of the studies of Paricutin Volcano. Observations of volcanic activity were made; a topographic map was prepared by the United States Geological Survey; and gravity, seismic, and magnetic surveys were conducted. Close studies of the process of erosion and deposition were made in this ideal geomorphic laboratory.

Committee on stratigraphy (*Carl O. Dunbar, chairman*).—Substantial results were achieved by this committee during its first full postwar year. Correlation charts were completed for the Ordovician system and the Mississippian system. Much progress has been made on compilation of the charts for the Permian, Jurassic, and Cretaceous systems. Work on the handbook on the Silurian system was continued. A similar handbook on the Cambrian system has been begun.

Committee on preparation of a symposium on sedimentation (*Parker D. Trask, chairman*).—This new committee has begun work on the preparation of a symposium to replace the Treatise on Sedimentation and the Symposium on Recent Marine Sediments, both of which have been out of print for some time. It is planned in the new volume to summarize the basic plans of sedimentation and to stress the principal economic applications of sedimentation. These plans were discussed at some length in conferences held during the annual meeting of the Geological Society and of the American Association of Petroleum Geologists.

Committee on tectonic map of the United States (*Chester R. Longwell, chairman*).—Inasmuch as the first printing of 5,000 copies of the tectonic map of the United States is virtually exhausted, the committee plans to make some correction in that map so as to have a new edition printed. Plans have been made for extensive revision of this map so that a revised edition can be published in due season.

Committee on interrelations of Pleistocene research (*Richard F. Flint, chairman*).—This committee was reconstituted so late in the year that little was accomplished beyond the selection of certain qualified committee members. It is planned to have the work of the committee in full force by the fall of 1947.

Committee on interrelations of paleobotany (*L. R. Wilson, chairman*).—This committee was reconstituted so late in the year that little was accomplished beyond the selection of certain qualified committee members. It is planned to have the work of the committee in full force by the fall of 1947.

GEOGRAPHIC

In spite of the heavy teaching loads which continued to tax the geographers associated with universities and the continued demands on those in Government service, geographic research began to assume a peacetime aspect during the year. Action taken at the annual meeting in May of 1946 to reform the bases of the committee work of the Division resulted in the elimination of most of the old purely geographic committees. Some of the most important work of geographers within the Division was done in connection with the joint committees reported on above. This is especially true of the important committee on declassification and salvage of maps and documents and the national committee of the United States on the International Geographical Union. Geographers await with considerable interest the completion of the manual on noninstrumental methods of constructing maps from aerial photographs nearing completion by the joint committee on map sketching from aerial photographs.

The one purely technical geographic committee active during the year was that on Latin-American Geography (P. E. James, chairman). This committee aided with the final preparations for the postponed meetings of the Pan American Institute of Geography and History and the Third Pan American Consultation on Cartography at Caracas, Venezuela, originally planned for November 1945, but actually held late in August 1946. It also prepared and has ready for distribution a bibliography of Research Projects on the Geography of Latin 'America by Geographers of the United States and a directory of Mexican Research Geographers and Institutions of Geographic Investigation.

On recommendation of the Division, the National Research Council furnished financial support and a meeting place for a preliminary conference on a projected National Atlas of the United States. This project is under study by a joint committee of the Association of American Geographers and the American Association for Professional Geographers.

The return to a normal peacetime basis was evidenced by the fact that several proposals for new geographic committees, each with a definite short-term objective, were under study at the end of the year and should result in a number of new projects.

DIVISION OF MEDICAL SCIENCES

(LEWIS H. WEED, chairman; GEORGE B. DARLING, vice chairman)

During the past 12 months the Division of Medical Sciences has striven to meet its responsibilities as in the past years. In accordance with the custom of the Division, reliance has been placed upon divisional committees and in part upon interdivisional committees, which more and more come to represent those problems involving more than one discipline of science.

The divisional work during the year has continued to fall into two main groups of activities. In the first group are those functions carried by the Division for civilian agencies such as the philanthropic foundations and the national societies. The second group of responsibilities are those which relate to the performance of wide advisory services for various departments of Government. The second group is clearly defined in the Executive order establishing the National Research Council and must continue to be viewed as major responsibilities of the Division. During the year there has been considerable increase in the scope of undertakings for the civilian organizations; and in the second category a similar enlargement of responsibilities has occurred. This phenomenon becomes of interest when looked upon in relation to the wartime activities of the Division, when practically all energies were turned to the emergency. Fortunately the year has witnessed a resumption and increase in the purely civilian undertakings and the services to Government have continued to be large.

To meet these heavy activities for the Federal departments, reorganization of many advisory committees has been carried out during the year. In addition, a Presidential directive dated November 26, 1946, has given the Division responsibility for the establishment of a long-continued study of the Japanese casualties from the atomic bombs.

The inauguration of the work of the committee on growth, which was appointed to serve as the advisory body in research to the American Cancer Society, was successfully carried out a year ago. Since then the activities of this committee have expanded greatly, and a large program of grants has been recommended to the American Cancer Society.

During the year a large number of conferences was held in order to give specific answers to problems presented largely by the Federal services. These conferences, as in the past, have dealt with a wide variety of medical problems and have been of particular value both to the investigators and to the liaison officers of the Federal services.

Most of the work of advice to the Federal services has been carried forward under a tripartite contract with the Veterans' Administration, the Medical Department of the Army, and the Medical Department of the Navy. In addition, contracts for consultative services in aviation medicine have been made with the Air Corps and with the Office of Naval Research. Somewhat similarly, a contract with the Veterans' Administration has provided for a central office to serve the needs of the committee on veterans medical problems and to assist in statistical follow-up studies of war casualties.

During the year the Medical Fellowship Board has continued to discharge its obligations in effective fashion. The program of the Board has been widely extended, and the plan of 5-year appointment with rotation of membership has proven to be of service.

The annual meeting of the Division was held on May 3, 1947. The attendance at this meeting was surprisingly good, as representatives of most of the participating societies were able to come. The Division considered the appointment or reappointment of long-term continuing committees, as well as of the special advisory groups to the Federal services. The chairman reported the discharge as of June 30, 1946, of all of the wartime committees and the appointment during the year of a new group of committees which include in their membership many Reserve officers who had had active service during the war. The Division elected the customary officers and members of the executive committee. The general program of the Division was approved by the members, and the chairman was authorized to proceed as in the past.

GENERAL DIVISIONAL ACTIVITIES

1. *Medical Fellowship Board.*—With its reconstitution effective July 1, 1946, the Board has continued administration of the funds made available for research fellowships by three national organizations. The funds coming to the Board during the past year have included an appropriation from the Rockefeller Foundation of $200,000 for fellowships in the medical sciences available over a 3-year period from July 1, 1947. An additional grant of $200,000 was made by the National Foundation for Infantile Paralysis. This grant provides for fellowships of both regular and senior grade in orthopedic surgery and

virus disease and for senior grade fellowships in pediatrics, neurology, and epidemiolgy. During the year a supplementary grant of $5,000, coming equally from the American Society of Anesthesiologists and from an anonymous donor, was received in supplementation of the grant of $13,000 from the society, reported a year ago. This fund is designated for fellowships in anesthesiology under the jurisdiction of the Medical Fellowship Board.

The great problem facing the Medical Fellowship Board during the year has been the determination of amounts of the stipends. The prewar levels of compensation have proved to be entirely inadequate, and increase in the level of awards was voted by the Medical Fellowship Board. In general the stipends in the medical sciences and in other fellowships in the same category have been set at $2,500 for a single man and at $3,000 for a married man. In the senior grades such as those comparable to the Welch fellowships in medicine, the stipends now range from $3,000 to $6,000 a year, with period of appoint ment up to 3 years. Even with this increase in the annual allowance for the regular fellowships, some hardship will be inevitable, and it may be that a further increase will be necessitated in the future.

In addition to the award of the grant, the senior fellowships all carry an expense account of $1,000, which is given to the department in which the fellows are in residence. Such expense accounts have also accompanied the regular fellowships under the National Foundation grant, but it has not been found possible to extend these expense accounts through the whole series.

During the year 1946–47 the Board has held three meetings. A midsummer meeting was held in August 1946 in order to avoid delay in the award of fellowships to those candidates who were just released from military service. The regular procedure of application was followed with the terminal date set January 1, 1947. The Board met on March 13 and 14, 1947. At that time 2 applications for Welch fellowships, 15 requests for senior fellowships, and 66 applications for regular fellowships were considered. At a subsequent meeting at which the candidates for senior fellowships were interviewed, fellowships were awarded to six candidates in the senior grade.

Committee on pathology.—For many years the Division has had a continuing committee on the American registry of pathology. Due to a change in War Department regulations, in which definite responsibility regarding the registries was placed upon the Council's committee on pathology, reorganization of the group was effected in the late fall. At a meeting held December 18, 1946, the existing committee on the American registry of pathology recommended that it be discharged and its functions transferred to a new committee on pathology. This committee was appointed, after approval by the Executive Board of the Council, under the chairmanship of Dr. Howard T. Karsner, and consisted of 12 members. The group will assume responsibility for advisory services to the Federal agencies in the field of pathology, but it also will have certain executive functions in relation to the American registries of pathology. Arrangements were effected whereby the funds available to the American registries of pathology were transferred to the National Academy of Sciences. These funds approximated $40,000, and the Academy becomes the administrative agent handling the affairs of the registries. Under this plan the civilian director of the registries is appointed by the Surgeon General of the Army on recommendation of the committee on pathology. The committee in 1946 recommended the appointment of Col. J. E. Ash to this post and the recommendation was approved. It is expected that this arrangement will be of utmost service in the program of the American registries of pathology. During the year additional funds were received for support of the registries, and one additional sponsoring society, the American College of Radiology, was approved for establishment of a registry of radiologic pathology. As now constituted, the American registries of pathology comprise 15 units supported by 12 societies. The first of the registries was established in 1922, and there has been a steady and thoroughly healthy growth since.

Advisory committee on drug addiction.—Although this committee was relatively inactive over a period of several years, it has become very active during the past year as advice regarding the licensing and testing of new narcotic drugs was sought by the Commissioner of Narcotics. The committee gave much attention to the problem of a new German drug, Amidone, which with patents detailing methods of manufacture was seized by one of the American technical investigating committees in Germany. As this drug has a chemical constitution quite apart from morphine, and as copies of the patent are available on payment of a small sum through the Department of Commerce, difficulty in the control of manufacture was anticipated. The advisory committee on drug addition therefore recommended to the Secretary of the Treasury that steps be taken to secure congressional legislation extending Federal control to include all narcotics of this potency. It is hoped that such steps can be taken with promptness, as the possibility of increase in drug addiction from this drug will be very great indeed.

The second important problem of the committee on drug addition relates to the distribution of Metopon, a synthetic morphine derivative which was developed in the laboratories of the United States Public Health Service. This drug alleviates pain as effectively as morphine, but it can be taken by mouth over long periods without nausea. As supply of the drug has now become adequate, Metopon is now released for terminal care under careful control by the committee and the Commissioner of Narcotics. Two of the large drug firms contributed sums of money to the Academy-Council for the general over-all office function of reporting results; the American Cancer Society also contributed to the total enterprise. Because Metopon is as much a habit-forming drug as morphine, physicians will necessarily have to obtain the approval of the committee on drug addiction as well as that of the Commissioner of Narcotics.

Committee on research in endocrinology.—During the year under report, 21 research projects were supported by grants of the committee in the total amount of $47,285. This program was of only slightly lesser magnitude than the prewar program of the committee. The war years, however, showed a marked diminution of the total grants made under the jurisdiction of the committee.

During December 1946, the National Research Council received an appropriation of $60,000 from the John and Mary R. Markle Foundation for support of the research program of the committee. This grant was for a period of 1 year, but provision was made to allow the committee to obligate funds for an ensuing year, temporarily charged against the revolving fund of $60,000 given by the Markle Foundation for war purposes and subsequently released for the general needs of the Division.

The annual meeting of the committee was held on April 26, 1947. The committee approved the tenth annual report for 1946–47. It recommended that 22 grants in aid of research for the year 1947–48 be approved in the amount of $56,280. In addition the committee recommended that the sum of $2,500 be allocated for administration during 1947–48. The total budget of the committee therefore aggregates $58,780. In order to give greater continuity to the program, six of the grants involving $15,500 were made for a 2-year period, the funds for 1948–49 being temporarily charged against the revolving fund. The committee declined to approve 15 requests for assistance.

Committee for research in problems of sex.—The board of trustees of the Rockefeller Foundation at a meeting held December 3 and 4, 1946, appropriated up to $80,000 to the National Research Council toward support of the work of the committee during the 2-year period beginning July 1, 1947. Not more than $50,000 of this amount is to be obligated in either year of the appropriation. The committee therefore had available $40,000 for support of the regular research activities as well as an additional sum of $40,000 for allocation through the committee for support of the work of Dr. Alfred C. Kinsey of Indiana University.

At the annual meeting of the committee held on April 27, 1947, 12 research projects were recommended for financing in the total amount of $37,525. In addition the committee recommended support of the research program of Dr. Kinsey to the extent of $40,000 in 1947–48. With $2,500 added for administration during the year the total budget of the committee therefore aggregates $80,025.

The committee discussed the preparation of a historical report on the 25 years of activity of the group. The group unanimously approved the project because of the potential value of the presentation to workers in this field and to other groups carrying forward coordinated programs of research. The committee decided to recommend the allocation of $5,000 for the preparation and publication of the history of the quarter-century service of the committee. Dr. Yerkes and Dr. Corner were empowered to select the editors for the undertaking.

Dr. Yerkes presented his resignation as chairman of the committee after 26 years of service. The resignation was accepted with great regret, and Dr. George W. Corner, director of the department of embryology, Carnegie Institution of Washington, was recommended for appointment as chairman from July 1, 1947. Dr. Yerkes' contribution to the problems of sex has been outstanding. He was far more than an effective presiding officer over the activities of a committee. He was an inspiring, forward-looking leader who planned a program of investigation which has resulted in the advance of knowledge in this difficult field and in the alteration of the public attitude toward the great problem. Dr. Yerkes has worked with untiring devotion; he has shown initiative and skill in the great undertaking. The gratitude of the Division goes to him in full measure.

Committee on growth.—The operations of the committee on growth during the year have continued to mount, with the program of research now getting fully under way. As reported a year ago, certain organizational changes were effected as of July 1, 1946. In these changes, the membership of the committee on growth was increased to 20, with term appointments up to 5 years. The executive committee was constituted of the chairmen of the six Sections: Biology, Chemistry, Chemotherapy, Clinical Investigation, Fellowships, and Physics. The chairman of the committee on growth, Dr. C. P. Rhoads, was appointed as chairman of the executive committee as well. The central office has continued under the direction of Dr. Philip S. Owen and Dr. Hayden C. Nicholson, both of whom have shown administrative capacities and initiative of a high order.

The committee on growth held two meetings during the year, while the executive committee met monthly. The committee on growth determined general allocations of funds available to the committee and general policies in administration. The program of grants-in-aid as developed by the executive committee was submitted to the full committee on growth and approved, and these recommendations went forward to the American Cancer Society, as provided in the contract, on February 1, 1947. A total of 247 grants-in-aid recommended by the committee on growth during the past 2 years have been approved by the American Cancer Society, and 49 fellowships have been awarded by the society on recommendation of the committee. At the time of writing, a small number, both of grants and fellowships, have been also recommended and await formal approval by the society. The total research program, including grants-in-aid, fellowships, and administrative expenses, will constitute an outlay of over $2,000,000 for 1947–48. This is more than double the amount available for grants during the previous year.

Certain activities of the committee on growth deviate from the customary pattern of passive review of applications for aid. The committee has undertaken to determine the needs in especially important areas of research and to initiate programs in the fulfillment of these needs. Especially noteworthy are new undertakings in the wide area of chemotherapy in cancer and in research in tissue culture.

A number of conferences on important subjects relating to cancer have been organized successfully by the committee during the year. The committee has actively cooperated through its Section on Physics, initially with the Manhattan District and now with the Atomic Energy Commission, in making available to the research workers of the Nation isotopic tracer materials for biological research and information concerning their safe use. On recommendation of the committee, the American Cancer Society has contributed to the support of the Chemical-Biological Coordination Center of the National Research Council, to the program for distribution of Metopon for terminal care, and has established within the Academy-Council a fund to be used in defraying the expenses of visiting foreign investigators.

The committee on growth has become one of the most important agencies in the Council and has come to occupy a key position in the field of cancer research. The members of the committee have all given freely of their services, and the devotion of those constituting the executive committee has been exceptional. The whole enterprise represents a pattern of function whereby the Council furnishes a national society with unbiased scientific advice. The committee has been most fortunate in having Dr. Rhoads as chairman, and the

Division owes a great gratitude to him for his effective and wise leadership.

Medical advisory committees.—As reported in the foregoing paragraphs, the advisory committees which served through the war were discharged as of June 30, 1946. The discharge of these committees did not, however, mean that the military services did not desire additional consultation and advice in the field of medicine, for in March 1946, Maj. Gen. Norman T. Kirk proposed that steps be taken to assure continuing cooperation. As a result, a tripartite contract was executed between the Academy-Council and the Medical Departments of the Army, Navy, and Veterans' Administration, providing financial support of the advisory services. Thus the fruitful collaboration that existed during the years of war has been extended. A small central office, staffed by Mr. John J. Lentz, Jr., and Dr. Sophie D. Aberle, was established within the Council, to care for the technical work, specified in the contract. The following advisory committees have been reconstituted during the year under report:

(*a*) Committee on aviation medicine
(*b*) Committee on chemotherapy
(*c*) Committee on hearing
(*d*) Committee on medicine, including subcommittees on—
  Cardiovascular diseases
  Infectious diseases
  Liver diseases
  Tropical medicine
  Tuberculosis
  Venereal diseases
(*e*) Committee on neuropsychiatry
(*f*) Committee on pathology
(*g*) Committee on sanitary engineering, including a subcommittee on military water treatment
(*h*) Committee on surgery, including subcommittees on—
  Anesthesia
  Neurosurgery
  Ophthalmology
  Orthopedic surgery
  Thoracic surgery
  Vascular surgery

All of these committees have functioned as in the past, making recommendations to the Surgeons General and to the Chief Medical Director of the Veterans' Administration, and have been asked by the services not only to pass upon questions posed by the services, but also to initiate enterprises which in the opinion of the members of the committees would be of benefit to the services. Since the formation of the committees, advice has been sought by the Federal services on a wide variety of problems. One of these problems, the revision of Army and Navy physical standards, will be a major continuing interest of the committees on medicine, surgery, and neuropsychiatry. Each phase of the physical standards will be critically reviewed by competent specialists, who will evaluate physical and mental requirements in relation to job placement.

In addition to meetings of the medical advisory committees, conferences under their auspices have been sponsored on peripheral nerve injuries, penicillin prophylaxis of venereal diseases, streptomycin therapy of tuberculosis, and recent advances in aviation medicine.

The medical advisory committees have also taken an active responsibility in the promotion and evaluation of research within the Federal medical departments. In cooperation with the committee on veterans medical problems, proposals have been made for clinical studies of conditions which developed during the war. These proposed investigations include extensive studies in medicine, surgery, and neuropsychiatry.

All the advisory committees serve in a consultative capacity in regard to any of the problems which arise within the Division. An attempt has been made to minimize the time demands on the members of the committees by having each group function for many agencies at the time of the meetings.

The Chemotherapy Center for Tropical Diseases has continued to operate throughout the year under the effective direction of Dr. Lucille R. Farquhar. Its operations have been on a reduced scale, since urgent demands are no longer encountered for drugs required for the cure and prevention of various tropical diseases. The center has proved to be a very useful mechanism for supplying drugs of promise to the four principal investigating centers. The center will be abolished as of June 30, 1947, and its activities transferred to the Chemical-Biological Coordination Center.

Among the advisory committees, special note should be recorded regarding the activities of the committee on aviation medicine, which has been fortunate in having the services of Dr. Joseph Ney, as technical aide. This committee, financed jointly through the Air Surgeon's Office and the Division of Aviation Medicine of the Bureau of Medicine and Surgery, has met at various times during the year. The first meeting of the committee, October 3, 1946, was devoted to discussion of future trends in aviation medicine. The second meeting was held in one of the service laboratories, so that opportunities for discussion of problems and for the development of closer relationship between the scientists in the service laboratories and those in civilian institutions were provided. As a result of this meeting, a report was prepared regarding the possibility of best utilizing research facilities in aviation medicine.

Under the auspices of the committee, a symposium was held April 8 and 9 on recent scientific developments applicable to aviation medicine. The following phases were discussed: Oxygen and anoxia, decompression sickness, acceleration, vision, psychology, and an evaluation of medical requirements for flight personnel.

The committee on aviation medicine has endeavored to serve as a clearing house of information for the armed services. This has been accomplished by the preparation of a Bibliography of Aviation Medicine, which consists of two volumes of approximately 800 pages, listing all of the articles on aviation medicine on file in the National Research Council. Only those articles which have not appeared in the open literature were included.

The committee on aviation medicine has continued to sponsor the crash injury research project. A subcommittee was formed to determine what activities the Research Council should undertake for promotion of safety in flight. The subcommittee is actively at work.

Committee on veterans' medical problems.—This committee had its origin in a conference called in April 1946, at the request of Maj.

Gen. Norman T. Kirk, Surgeon General, United States Army. General Kirk suggested that a group be assembled to consider the problem of clinical research and follow-up studies on important diseases and injuries incurred in the military service. The initial conferences recommended the appointment of an ad hoc group which would undertake a comprehensive study of the opportunities for continuing investigation. This report was compiled for the ad hoc committee by Dr. Michael DeBakey and Dr. Gilbert Beebe and constitutes an extraordinarily effective analysis of the entire problem. The report was approved by the committee and forwarded to the three Surgeons General as well as to the Chief Medical Director of the Veterans' Administration. The report envisioned that studies of three types could be profitably carried out, all dealing with medical problems of veterans and members of the armed services: (1) Clinical follow-up studies; (2) original investigations which might be carried out in veterans' hospitals or other institutions; and (3) record studies on mortality and duration of disability for groups selected on the basis of their medical histories in the services. As a result of this report, Dr. Paul R. Hawley, Chief Medical Director of the Veterans' Administration, requested that the National Research Council appoint a permanent committee on veterans' medical problems. After approval by the executive board, the chairman of the Division of Medical Sciences appointed a committee of 13 members, selected to represent the major disciplines in medicine and with extensive experience in the medical services of the Army and Navy during World War II.

The committee, organized under the chairmanship of Dr. O. H. Perry Pepper, has held four meetings during the year under report. A central office for the committee, under the direction of Dr. John C. Ransmeier and Dr. Gilbert W. Beebe has been established within the Council and has functioned effectively during the year. Various projects of clinical research and follow-up studies have been presented for opinion to the committee and recommendations for their performance have been forwarded to the Veterans' Administration. A sum of $750,000 for this purpose was originally planned for the fiscal year 1947 and larger sums for subsequent years, but legislative uncertainties have prevented accurate prediction of the amounts which may be devoted by the Veterans' Administration to the program. The entire enterprise is only now getting under way because of the uncertainties mentioned, but it is expected that out of the activities of this committee will come a well-planned program of follow-up and statistical studies. The whole undertaking promises to be of utmost importance, and it is hoped that the next year will show certain of the projects well under way.

As the work of the committee necessarily involves access to medical records of members of the Armed Forces, steps were taken to secure proper authorization from the War and Navy Departments. By combined action of the Secretary of War and the Secretary of the Navy, access to these medical records was allowed for properly accredited representatives of the National Research Council when engaged on investigations undertaken at the request of the Surgeon General of one or both of the services and on investigations approved by these Surgeons General. Similar access to records of the Veterans' Administration has been provided.

Committee on atomic casualties.—During the spring of 1946, Maj. Gen. Norman T. Kirk, Surgeon General of the Army, asked that the Division explore the possibility of a long-term continuing study of the effect of the atomic bombs on the Japanese. The armed services had sent a combined commission into the Nagasaki and Hiroshima areas soon after the occupation of Japan, but no continuing study has been made, although the original commission had made extensive reports and had brought back a great deal of excellent pathological material.

The request of General Kirk was met by assembling a conference for discussion of the whole problem. Out of the deliberations of the group came the suggestion that interim studies be made by competent American medical scientists dispatched to Japan and that a continuing organization for long-term study be set up, either by direct Presidential appointment of a commission or by a Presidential directive instructing the Academy-Council to constitute such a body.

As a result of the first of the two suggestions, the Division nominated to General Kirk a series of individuals competent to undertake the interim studies in Japan. Dr. Austin Brues and Dr. Paul S. Henshaw were subsequently appointed as consultants to the Secretary of War, and, accompanied by medical officers of the Army and Navy, proceeded to Japan in November 1946. The commission was in Japan for about 2 months and made a very careful survey of the potentialities for future studies. This report was subsequently released for publication, and was distributed by the American Cancer Society to the medical institutions of this country and to certain interested individuals. It constitutes a valuable addition to the sum of knowledge available regarding the Japanese casualties.

While Dr. Brues and Dr. Henshaw were in Japan, the Academy-Council received a Presidential directive, dated November 26, 1946, in which the Council was instructed to establish a long-term continuing study of the medical and biological effects of the atomic bomb on man. The matter of appointment of a continuing committee was discussed with members of the Atomic Energy Commission; and as a result of the discussion, a committee on atomic casualties was appointed by the Division under the chairmanship of Dr. Thomas M. Rivers. The committee has held several important meetings and has been able to plan a definite program of research in the several fields of importance in radiation effects.

Under the Presidential directive, the cooperation and aid of all federal departments was arranged. Pursuant to the provisions of the directive, the Academy-Council has proposed to the Atomic Energy Commission the financing of the work of the committee over a term of years. This proposal has been approved by the Surgeons General of Army and Navy and by the Chief Medical Director of the Veterans' Administration. It is expected that financing of the enterprise by contract with the Atomic Energy Commission will be forthcoming; but the various uncertainties which have confronted the commission in its early months of functioning may delay the actual signing of the contract.

It is thought that, in order to carry out the Presidential directive, a central office with a professional director must be established within the Council. In addition, it will be necessary to have a small administrative organization in Tokyo in order to make possible effective coordination of activities in Japan and to arrange proper liaison with the military forces. Peripheral study units will ultimately be set up in Hiroshima and Nagasaki, as well as one in a control city of similar size. The whole undertaking promises to be one of great significance and to require fairly large expenditures over a number of years.

These form the activities of the Division during the year under report. The energy of the Division during the past year has been devoted to the development of continuing peace-time activities, both for the Federal services and for civilian enterprises. The work of the more or less permanent committees of the Division has remained constant or has increased. The additional new activities, both for the Federal services and for the civilian organizations, have grown enormously.

DIVISION OF BIOLOGY AND AGRICULTURE

(Robert F. Griggs, chairman; Remington Kellogg, vice chairman)

American Institute of Biological Sciences.—In August 1946, a group of biologists who had been active in the movement to establish an institute of biological sciences met and formally requested the NRC for assistance. In accordance with this request the NRC appointed a committee to study the problem. This committee included: E. G. Butler, Robert Chambers, Ralph E. Cleland, Wallace O. Fenn, John S. Karling, Paul J. Kramer, J. S. Nicholas, H. B. Steinbach, Neil E. Stevens, H. B. Tukey, and Paul Weiss, with Drs. Bronk and Griggs ex officio.

The committee recommended unanimously that the NRC establish such an institute within the Division of Biology and Agriculture. The NRC agreed that it would be feasible for the Council to provide the service and it was proposed that the NRC, with the cooperation of the committee, proceed (1) to appoint a temporary executive secretary of the institute, (2) to establish an organizing board for the institute comprising 1 representative from each of the 28 member societies of the Division of Biology and Agriculture, together with the members of the committee on the institute, and (3) to call a meeting of the organizing board to effectuate a permanent organization.

It was agreed that H. B. Steinbach should act as temporary executive secretary and a committee was appointed to prepare a tentative constitution and bylaws, together with a list of services that might be performed by the institute.

As the result of the above recommendations, the organizing board met on April 11, 1947. All but one of the member societies were represented. It was voted that the institute should start to function when 10 or more of the societies eligible for charter membership had ratified the provisional constitution and bylaws.

Agricultural board.—The board met in October and has continued the work of its committees.

The committee on animal health held two meetings in 1946. The report of the subcommittee on rabies, "Rabies and its Control," published in May 1946, continues to be popular and has served to crystallize opinions in a field where there has been much confusion. J. D. Ratcliff, the popular science writer, prepared an article based on this report, which was published in McCall's magazine, March 1947. The report of the subcommittee on mastitis, "Intramammary Therapy of Bovine Mastitis," published in 1945, continues to be in great demand as evidenced by requests for reprints, both in this country and in England. A new subcommittee on the public health aspects of brucellosis was set up with the following members: W. W. Spink, chairman, University of Minnesota; W. L. Boyd, University of Minnesota; C. L. Larson, National Institute of Health; C. F. Jordan, Iowa State Health Department; L. M. Hutchings, Purdue University; C. K. Mingle, United States Department of Agriculture; Alice C. Evans, Consultant, Washington, D. C. The members met on April 21 with representatives from the National Institute of Health and the Bureau of Animal Industry. The subcommittee was invited and agreed to act as United States Committee on the Inter-American Committee on Brucellosis, which was appointed following a meeting of the First Inter-American Congress in Mexico City. It is the opinion of this committee that while the problem of eradicating brucellosis would require a long-time program, an educational program would aid in protecting human beings against the disease. The subcommittee plans to make precise recommendations in a report to be submitted at a later date.

Subcommittees on losses among young pigs and on losses among calves have been set up to study the information available on the causes of losses among these animals between birth and weaning.

The series of reports on nutrient allowances for farm animals prepared by the committee on animal nutrition, continue to be in great demand, both in this country and abroad. The committee recognizes the need for greater uniformity in the bases for determining nutrient allowances for different species of domestic animals and also for greater uniformity in manner of presenting them in the tables. The revision of the Recommended Nutrient Allowances for Poultry was completed and a revised preliminary report released November 1, 1946. The requests for this have been so great that it has been necessary to prepare a second edition.

A subcommittee on horses has been approved to extend the series of recommendations concerning nutrient allowances for farm animals to include horses.

The committee on feed composition initiated a study to furnish information on the nutritive value of feeds for the use of those interested in animal nutrition, including calories, gross composition, and the more important minerals and vitamins of livestock feeds.

Because of increasing requests for such information, it was considered advisable to prepare a preliminary table as soon as possible. It is hoped that interest will be stimulated in the more complete analyses of compounds, and that experiment stations and industrial laboratories will continue to extend their cooperation by the release of important data for the use of this committee.

Plans have been made to expand the table by including values on amino acids and the newer vitamins found in feed ingredients, as well as other values which may become available.

Since corn is the most important grain used in livestock feeding, a plan was formulated to collect and analyze samples of the 1946 crop. The data on that project are also included as a separate section. Plans are being perfected to sample and analyze the 1947 crop in a similar manner.

A meeting of the committee was held on May 12, at which representatives from the National Feed Committee of the Dominion Government of Canada were present, and arrangements for active cooperation were made.

The work of this committee is supported by grants from Swift & Co., from Merck & Co., from Ralston Purina, and others.

A committee on the over-all agricultural policy was set up in March 1946 to study developments in agricultural problems and policies in a broad perspective and to help the Board mature its grasp of underlying facts and issues. The committee has circulated a report summarizing the more important literature on agricultural policy that has appeared since 1944, and also a report dealing with the major issues expected to become urgent soon.

The committee on plant and animal stocks.—The Food and Agriculture Organization invited representatives of several United Nations member countries to become members of a Subcommittee on Plant and Animal Stocks and a conference was held in May 1947. One of the principal purposes of this conference was to lay the foundations for a more comprehensive conference on stock maintenance problems that is to be held in Stockholm at the time of the International Congress of Genetics.

Committee on training of research workers in agriculture.—The report prepared by this committee has been published in the NRC Reprint and Circular Series, under the title, "The Shortage of Professional Workers in Agriculture." Pillsbury Mills, Inc., made a grant to pay for the publication of this report and the committee has now been disbanded.

The committee on veterinary services for farm animals met on December 16. Steps have been taken toward the establishment of a veterinary section in the Association of Land-Grant Colleges. The pilot projects, to ascertain the extent of losses resulting from mortality and morbidity of farm animals, is proceeding successfully. The services of a full-time veterinarian and of the statistical laboratory at Iowa State College have been obtained and the United States Livestock Sanitary Association has pledged its support to the committee. Dr. Newton, chairman, has been working in close cooperation with FAO. The subcommittees on training of veterinarians and on need for veterinarians met on December 2. After an extensive study of the facilities that exist for training of veterinarians and of the demand for new facilities, these subcommittees submitted a report, New Veterinary Colleges, which has received considerable attention throughout the country. The subcommittee on training of veterinarians has been cooperating with the American Veterinary Medical Association in a survey of the need for specialized training and of the opportunities available for such training. A report of this work has recently been completed.

The subcommittee on laws and regulations for animal health is continuing its work of codifying all the laws, rules, and regulations for the various States affecting the health of animals—now hopelessly confused. Upon completion of this codification, recommendations for uniformity will be made.

The Food and Nutrition Board held two meetings during the year, with full 2-day programs. Distinguished guests at these meetings included Lord Stanley Bruce, Chairman of FAO Preparatory Commission on World Food Proposals, and Sir Edward Mellanby, secretary of the Medical Research Council of England.

The activities of the Board and its committees are:

International food evaluation.—(*a*) A report entitled, "Calorie Consumption Levels and Their Relation to Health, Well-being and Capacity for Work" has been accepted by Government agencies concerned with food export as the basis for estimation of requirement of recipient nations (committee on emergency food problems). (*b*) Standardization of international food composition tables on the basis of the FAO report on Energy Yielding Components of Food and Computation of Calorie Values is under consideration for its applicability to revision of United States food evaluation (committee on food composition).

Food enrichment.—More than 12,000 copies of the pamphlet entitled, "Bread and Flour Enrichment, 1946–47" have been requested. A resolution on enrichment of corn products passed by the Board on May 10 has resulted in the calling of a conference of Southern States public health and nutrition leaders to be held at Clemson College in South Carolina, for the purpose of nutritional improvement of corn products in areas where the consumption is extensive and incidence of deficiency diseases, particularly pellagra, is high. The following States and Territories now have legislation requiring enrichment of white bread and flour on the basis of the formula recommended by the Food and Nutrition Board: Alabama, Arkansas, Georgia, Indiana, Louisiana, Maine, Mississippi, Kansas, Kentucky, New Hampshire, New Jersey, New York, North Carolina, North Dakota, Oklahoma, South Carolina, South Dakota, Texas, Washington, West Virginia; Hawaii and Puerto Rico.

The introduction of nonfat milk solids into school-lunch programs in areas where fluid milk is scarce has provided milk for some 200,000 school children who would otherwise have received little or no milk. This resulted from the action of the committee on milk, which stimulated the issue of the milk powder by the Production and Marketing Administration of the USDA.

A committee on milk quality and standards has been set up under the chairmanship of Dr. G. M. Trout of Michigan State College. This committee held its first meeting in Buffalo, June 28, jointly with the committee on milk production and distribution.

A handbook for physicians on Diagnosis and Pathology of Nutritional Deficiencies is being prepared in collaboration with the American Medical Association and the Canadian Medical Association. This newly organized International Medical Association has expressed great interest in this endeavor.

A report has been prepared on human milk for infant feeding and the study of maternal nutrition in relation to infant health is continuing. The committee on maternal and child feeding will meet in New York July 13, in connection with the World Congress on Pediatricians.

Active collaboration with the American Dietetic Association has been established by the committee on institutional feeding. Preparation of manuals and instructional devices for improving nutritional practices and conditions in small hospitals, orphanages, and prisons is planned.

The fourth section, Nutrition and Dental Caries, in the comprehensive review of the literature on dental caries by the committee on dental health has been circulated for review. Two other sections on epidemiology and clinical aspects of dental caries are being prepared after which a summary review of the six sections will be made and the whole published as a monograph.

Extensive reviews and planned studies on the relation of nutrition to physiological stress and toxic reactions in industry are in development by the committee on nutrition of industrial workers.

A monograph presenting the results of the 3-year study of Nutritional Aspects of Ageing at the Elgin State Hospital is rapidly nearing completion. A short résumé entitled, "Studies of Vitamin Deficiency" was published in Science, November 1, 1946. The vitamin deficiency studies at the Elgin State Hospital are continuing under the supervision of a Board committee with financial support from the National Vitamin Foundation and the United States Public Health Service.

The food economics and supply committee has been expanded to collaborate actively with the Farm Economics and National Planning Associations and also with FAO and the International Emergency Food Council. Heretofore, this committee has served primarily to keep the Board informed on the current food situation.

Survey of food and nutrition research.—With the support of the QM Food and Container Institute of the Armed Forces, the Board is undertaking a comprehensive survey of food and nutrition research currently active in the United States. In addition, a roster of professional personnel engaged in food and nutrition research will be developed in close collaboration with the Office of Scientific Personnel. This central reference source and registry, where the over-all picture of food and nutrition research can be reviewed and evaluated, will not only have increasing usefulness to the peacetime progress of research but will also facilitate prompt and coordinated action in the event of another national emergency.

OTHER COMMITTEES OF THE DIVISION

The committee on aircraft versus wilderness was appointed following a request from the United States Forest Service for recommendations concerning the use of aircraft in wilderness areas. The committee completed its report and transmitted it to the Forest Service, and it has since received considerable publicity. The Forest Service regards the report as a substantial contribution, and has requested the Council to give further consideration to the problem.

The committee on biological processes of ageing has been dissolved, since its work has been largely taken over by the Research Section on Gerontology of the National Institute of Health.

The committee on ecology of animal populations plans a report on the effects of environmental conditions on the characteristics of animal populations.

The joint committee on forestry, after 2 years or more of study, published its report, Problems and Progress of American Foresters in the United States, in February of this year, and the committee was dissolved by action of the Division at its annual meeting.

Work of the committee on genetics of micro-organisms was at a standstill during the war. It was reactivated with a meeting in June 1946, when members discussed the recent advances on the research of the genetics of micro-organisms, and plans were made for holding a symposium on the subject. A program has been drawn up and arrangements made for a symposium to be held in conjunction with the AAAS meetings at Chicago.

Reports of the committee on research in comparative physiology under natural conditions have raised interest in the facilities of field research in physiology. It does not appear likely that established physiological institutions will change their programs to field or comparative physiology, and support will come only through new institutions or through the recognition of new requirements for physiology.

Government services are now concerned with environments offering physiological obstacles to penetration and occupation, and this committee is now working closely with the War Department. Detailed discussion of its activities is prevented because the operations are classified.

The committee on the Naples Zoological Station acts as agent for the Naples station in the United States, has its counterparts in England, Sweden, and Switzerland, and the interest taken by foreign countries has impressed the Italian Government to the extent that it is now providing funds. The example set by NRC, which was the first to rent a research table, has been followed by the American Association of University Women and the American Society of Zoologists. The committee has strongly urged that the Naples station be among the first of the international research institutes to be sponsored by UNESCO.

The report of the committee on wildlife, Some Wildlife Jobs Awaiting Attention, has continued to attract considerable attention among conservationists, and many requests have been received for copies. The report was published in Conservation of Wildlife hearings before the Select Committee on Conservation of Wildlife Resources, House of Representatives, Seventy-ninth Congress, second session. The committee was discharged at the annual meeting of the Division.

At the request of the Research and Development Division of the War Department, the Division of Biology and Agriculture enlisted the cooperation of its member societies and the Office of Scientific Personnel in a survey to assist in devising more effective use of professional personnel in case of another national emergency. The Division assisted in the preparation and mailing of questionnaires, and several thousand replies have been received to date.

Prevention of Deterioration Center.—The principal activities of the Prevention of Deterioration Center during the past year were: Organization of a technical staff composed of persons with advanced training and experience in the fields of physics, biophysics, biochemistry, organic, inorganic, and textile chemistry.

This staff consults and advises with subcommittees and panels of the Joint Army-Navy Deterioration Prevention Main Committee (armed forces representatives). These deal with deterioration problems in electric and electronic, photographic and optical equipment; plastics and plasticizers; textiles, cordage, and leather; packaging and fungicides.

During the fiscal year the center issued the following indexes for the Tropical Deterioration Bulletin: Author Index for volume I, 74 pages. Author Index for Secret Supplements 1, 2, and 3, 20 pages; Subject Index for volume I, 174 pages; and also issued the Prevention of Deterioration Abstracts.

Through the cooperation of 10 Government agencies a program has been organized to evaluate fungicides and bactericides. Samples for evaluation are obtained from Government agencies, commercial organizations, universities, and the Chemical-Biological Coordination Center. A test method is in the process of standardization and approximately 400 samples have been sent out for testing. The goal is twofold—to study activity and chemical structure and to develop new fungicides and bactericides. An index of fungicides now includes 3,500 compounds.

A PDC laboratory, located at the Naval Research Laboratories, is, by permission of NRC and the Navy, available for the use of the PDC technical staff. The work includes determination of the purity of test samples, standardization of test methods, improvement of methods, and some fundamental studies of the physiology of fungi.

DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY

(A. Irving Hallowell, chairman; Charles W. Bray, vice chairman)

The activities of the Division during 1946–47 have, to a large degree, reflected the changing conditions and demands of the postwar period. Several of the psychological committees which were so active during the crucial war years are no longer functioning but, on the other hand, the committee on the selection and training of aircraft pilots is continuing the basic researches which are as important to peacetime as to wartime flying. Fresh areas of interest are, at the same time, arising, such as the Coordinated Investigation of Micronesian Anthropology which has been promoted by the Pacific Science Board of the Council and the Pacific committee on the anthropological sciences of the Division.

In anticipation of certain problems that seem bound to arise in the field of highly trained personnel, the Division gave consideration to the development of a research program on the selection of personnel for training in scientific research. At a conference on April 11, 1947, a group of psychologists and representatives of related fields agreed to recommend that a long-term psychometric study be initiated. At present support for the project has not yet been obtained.

These developments indicate the flexibility that is essential if the broad and continuing purposes for which the Council was organized are to be carried out.

Committee on African anthropology.—This committee has continued to promote interest in problems of African ethnology in this country. A "Finding List of African Films" to be circularized to departments of anthropology and other interested groups has been completed and a symposium on Africa was organized as part of the program of the American Anthropological Association at its annual meeting in December 1946. The papers presented will appear in a forthcoming number of the American Anthropologist.

Committee on basic needs in American archaeology.—This committee has a close working liaison with the joint committee for the recovery of archaeological remains which is composed of one representative each from the Society for American Archaeology and the American Anthropological Association, and two representatives from the American Council of Learned Societies. This liaison relationship serves to keep the National Research Council in close cooperation with conservation work in governmental and private archaeological research.

Committee on child development.—The work of this committee is closely integrated with that of the Society for Research in Child Development. Space is provided by the Council for use of the Society's publication office. The Parents' Institute contributed funds for a conference of representatives of child research institutions on needs, policies, plans, and procedures in child-development research that was held under the auspices of the committee in March.

Board on clinical psychology advisory to the Surgeon General.—Advice has been rendered to the Surgeon General on matters of organizational policy and personnel as well as on problems of follow-up on military personnel who were examined, diagnosed, and treated during the war.

Committee on the history of psychology and the war.—The committee has continued to assemble the basic documents from which it can ultimately prepare a general history of the activities of psychologists in World War II.

Committee on international cooperation in anthropology.—Through the generosity of the American Anthropological Association and the Viking Fund grants have been made available to begin work on a badly needed third edition of the International Directory of Anthropologists. The committee will have direct supervision of this project. One of the major considerations of this committee has been how to obtain publications for the depleted or destroyed libraries of foreign institutions and how to get books to scholars who have been cut off from this source of supply during the war. Members of the committee have been responsible for a series of reports on Anthropology During the War, which are being published in the American Anthropologist. Reprints of these have been sent to anthropologists all over the world. Yet to appear are reports on anthropology in the Arab World, South Africa, the Philippines, and possibly in Japan. Through the cooperation of Mlle. Yvonne Oddon, librarian of the Musée de l'Homme, Paris, it has been possible to gather detailed information on the fate of anthropological collections, libraries, and anthropologists in Germany. A member of the committee is responsible for the account of anthropological activities that appears annually in the Britannica Book of the Year.

Committee on international cooperation in psychology.—Like the above committee, this committee too has been concerned with meeting requests for books by foreign psychologists. The decision was not to send publications to individuals but to universities and institutions, and a list was prepared. With the cooperation of the American Psychological Association, back numbers of publications will be sent to those institutions listed.

During the year it was agreed that the former committee on Latin-American psychology be made a subcommittee of this committee. Members this subcommittee have now been appointed, and through correspondence a channel will be opened that will make it possible for psychologists in Latin-American countries to keep in close touch with their North American colleagues.

Committee on Latin-American anthropology.—Three subcommittees have been formed which are concerned with (1) collecting information on current research projects in both the Americas for distribution to interested members of the profession; (2) promoting the interchange of students and faculty in anthropology between institutions in the Americas; (3) the supervision of microfilming documents on Middle American anthropology, a project which is being carried out at the University of Chicago by a committee member.

Pacific committee on the anthropological sciences.—Subsequent to the Pacific Science Conference that was sponsored by the Council in June 1946, a Pacific Science Board was established as a general committee. This Board negotiated with the Navy Department for a grant of funds to initiate a "coordinated investigation of Micronesian anthropology" and secured the cooperation of various universities and museums and additional funds from foundation sources. Applications from 12 institutions for participation in this investigation were referred to the Pacific committee on the anthropological sciences for recommendation, this committee having been reconstituted from the committee on the anthropology of Oceania, which was set up in the Division during the war. The number of institution-sponsored participants amounted to 44, most of whom left for Micronesia in June 1947. This cooperative project is by far the largest of its kind in the history of anthropology. It includes investigations in the fields of ethnography, linguistics, personality psychology, and geography.

Committee on selection and training of aircraft pilots.—The Civil Aeronautics Administration of the United States Department of Commerce continued its support of the research of this committee. During the year the committee virtually completed its research on the relation between visual capacity and the ability to learn to fly. Two new experimental studies were initiated: (1) On the qualifications for safe air-line pilots and procedures for selection, certification, and upgrading of air-line pilots, and (2) on the ability to recognize incipient stalls. In addition, the committee surveyed the literature relevant to problems of pilot fatigue, prepared a compendium of useful tricks for the use of pilot instructors, and, at the request of the Civil Aeronautics Administration, prepared a restatement in lay terms of the medical requirements under the Provisional International Civil Aviation Organization in comparison to present CAA regulations. The publications of reports on these and previous activities of the committee brings its series of technical reports to a total number of 71.

REPORT OF THE TREASURER

For the fiscal year ended June 30, 1947

To the PRESIDENT OF THE NATIONAL ACADEMY OF SCIENCES:

The statements and schedules that follow constitute the treasurer's report and reflect the financial condition of the National Academy of Sciences (including the National Research Council) as at June 30, 1947, and the results of operations for the fiscal year ended on that date. In accordance with the practice established in the two previous fiscal years, the financial statements of the Academy and Research Council have been consolidated in order to present more effectively the total resources of the Academy and the total operations during the reporting period. Schedules subsidiary to the principal statements have been so designed as to permit fairly complete analysis of the financial data relative to any projects or activities.

INVESTMENTS

The investments of the funds of the Academy (including the National Research Council) are shown in detail in schedule A-2 and are summarized by classes of investments, as follows:

	June 30, 1947			Income received during the year
	Book value	Market value	Percent [1]	
U. S. Government bonds	$885,309.38	$882,771	22.06	$18,745.23
Railroad bonds	399,850.34	342,808	8.57	18,584.90
Other bonds	242,632.10	233,190	5.83	20,223.45
Preferred stocks	448,511.46	411,779	10.29	24,690.14
Common stocks	2,291,159.86	2 006,388	50.14	101,547.37
Mortgages and real estate	114,129.89	[2] 69,500	1.73	1,657.10
Cash	55,420.18	55,420	1.38	....
Total	4,437,013.21	4,001,856	100.00	185,448.19

[1] Of market value.

[2] Estimated.

As at June 30, 1947, the ratio of United States Government bonds to the entire portfolio (at market values) was 5.69 percent higher than at the end of the previous fiscal year, while the holdings of railroad bonds and other bonds were less by 1.07 and 3.90 percent, respectively. On the same basis, preferred stocks held were down 3.16 percent, and common stocks were up 3.02 percent over the previous year-end figures. Mortgages and real estate and uninvested cash held substantially the same relative positions as a year earlier.

The total book value of investments (including uninvested cash) on June 30, 1947, was $20,413.30 larger than at the end of the previous year. The market value of investments owned was 90.19 percent of the book value on June 30, 1947, as compared with 103 percent a year ago. The investment reserve deficit in the Academy's accounts was $6,139.71 on June 30, 1947. During the year ended on June 30, 1947, the rate of return on the average book value of all investments was 4.26 percent, or 0.18 percent less than for the previous year.

The funds participating in the consolidated fund and the income from the pooled investments are summarized in schedule C–1 of this report.

The Bank of New York continued to act as custodian of securities and Mr. Horace S. Ford as financial adviser.

OPERATIONS

During the year ended June 30, 1947, the combined operations of the Academy and Research Council (summarized in exhibit B and detailed in schedules C–2 and C–3) indicated total income from all sources of $3,454,612.10 and total expenses for all purposes of $4,118,274.03. The income and expenses may be classified as shown in the tables that follow in order to provide some interpretation and an indication of the magnitude of operations in the various categories.

TABLE I.—*Classification of income, by source*

Source	1945–46		1946–47	
	Amount	Percent	Amount	Percent
U. S. Government, under contracts for specifically requested services	$1,475,713.75	49	$1,816,088.13	53
Foundations, industrial concerns, and other private sources for studies, projects, and other restricted purposes	1,371,804.34	45	1,312,560.29	38
Interest and dividends on general fund investments, dues of members, sales of publications, and other sources for general purposes	178,101.41	6	325,963.68	9
Total	3,025,619.50	100	3,454,612.10	100

TABLE II.—*Classification of expenses, by purpose*

Purpose	1945–46		1946–47	
	Amount	Percent	Amount	Percent
Performance of work required by contracts with the U. S. Government	$1,489,333.65	55	$2,366,988.93	58
Studies, projects, and other services pursuant to private grants and other arrangements exclusive of work for U. S. Government	1,008,939.46	37	1,483,859.83	36
General administration, including operation and maintenance of the physical plant	232,940.41	8	267,425.27	6
Total	2,731,213.52	100	4,118,274.03	100

The $325,963.68 of income received during the year under review for the general purposes of the Academy and Research Council was available for expenditure in accordance with the Academy's internal budgeting procedure. Schedule C–3a reflects in detail the expenditures during the year from the three general fund budgets which were supported by this unrestricted income.

Exhibit C provides data on the condition of the various funds on June 30, 1947, and summarizes the transactions in the funds for the year ended on that date.

Respectfully submitted.

JEROME C. HUNSAKER, *Treasurer.*

NOVEMBER 15, 1947.

EXHIBIT A. NATIONAL ACADEMY OF SCIENCES (INCLUDING NATIONAL RESEARCH COUNCIL) [1]

Balance sheet as at June 30, 1947

	For details see exhibit or schedule	Total	Current funds		Trust and endowment funds	Plant funds
			General	Restricted		
ASSETS						
Cash in banks	A-1	$303, 205. 59		$226, 764. 90	$55, 597. 80	$20, 842. 89
Petty cash and stamp funds and traveling advances.		32, 272. 25	$3, 300. 00	28, 972. 25		
Bonds and stocks (at cost) (market price, $3,876,936).	A-2	4, 267, 463. 14	236, 117. 72	138, 499. 64	3, 892, 845. 78	
Mortgage and real-estate investments (at cost) (estimated market value, $69,500).	A-2	114, 129. 89	25, 000. 00		89, 129. 89	
Advance for pension premiums		1, 995. 42	1, 995. 42			
Interfund accounts			−96, 394. 43	96, 394. 43		
Property and equipment (at cost):						
Building		1, 324, 902. 40				1, 324, 902. 40
Grounds		266, 971. 28				266, 971. 28
Equipment (less reserve for depreciation of $27,315).[2]		84, 915. 41				84, 915. 41
Total		6, 395, 855. 38	170, 018. 71	490, 631. 22	4, 037, 573. 47	1, 697, 631. 98
CAPITAL ACCOUNTS						
Consolidated fund (including Carnegie Endowment Fund of $3,550,000).[3]	C	3, 942, 573. 47			3, 942, 573. 47	
Other funds	C	2, 453, 281. 91	170, 018. 71	490, 631. 22	95, 000. 00	1, 697, 631. 98
Total		6, 395, 855. 38	170, 018. 71	490, 631. 22	4, 037, 573. 47	1, 697, 631. 98

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[1] The accounts of the National Academy of Sciences (including the National Research Council) have been maintained substantially on a cash basis. The above balance sheet, therefore, does not reflect amounts receivable under Government contracts and agreements of approximately $900,000 at June 30, 1947; commitments incurred as at June 30, 1947, principally in connection with Government contracts, of approximately $450,000; depreciation accrued on the Academy building; and minor amounts of receivables from interest, dues, and sales of publications. As at June 30, 1947, the Rockefeller Foundation and other organizations had made appropriations to the Academy amounting to approximately $1,100,000, to be administered over a period from 1 to 4 years by the Academy for the purpose of continuing predoctoral fellowships and conducting research in various scientific endeavors.

[2] In addition to the amount of equipment shown in the above balance sheet, the Academy was the custodian at June 30, 1947, of equipment acquired in connection with work under contracts with various Government agencies amounting to approximately $40,000. The above balance sheet does not include reference material owned by the Academy, nor does it include slides and other equipment acquired upon the transfer of the assets of American Registry of Pathology to the Academy, the cost or present value of which has not been determined.

[3] An investment reserve was created by the Council of the Academy in 1925 to preserve the principal of trust and endowment funds; since then, net profits on sales of investments were added to the reserve but no segregation of such profits by funds was maintained in the accounts of the Academy, and in the balance sheets of prior years the Academy added the reserve to trust and endowment funds. As of July 1, 1946, the Academy transferred such reserve on its books to the consolidated fund, to which the major portion of the reserve applied.

SCHEDULE A-1.—*Cash on hand and in banks as at June 30, 1947*

On hand:		
Petty cash funds and advances	$29, 272. 25	
Stamp fund	3, 000. 00	
		$32, 272. 25
In banks:		
Washington:		
Riggs National Bank (treasurer's account)	200, 435. 52	
American Security & Trust Co. (business manager's account)	47, 349. 89	
		247, 785. 41
New York: Bank of New York		55, 420. 18
Total (exhibit A)		335, 477. 84

SCHEDULE A–2.—*Investments owned as at June 30, 1947*

	Face amount or number of shares	Book value	Market value
Bonds:			
U. S. Government:			
U. S. Treasury 2¼'s, 1959	$50,000	$52,343.75	$52,656
U. S. Treasury 2½'s, 1967	50,000	52,671.88	52,391
U. S. Treasury 2½'s, 1969	100,000	100,125.00	103,843
U. S. Treasury J 2½'s, 1972	170,000	172,168.75	174,675
U. S. Treasury D 2½'s, 1972	100,000	100,000.00	102,750
U. S. Treasury G 2½'s, 1953–59	408,000	408,000.00	396,436
Subtotal		885,309.38	882,751
Railroad:			
Baltimore & Ohio, Pittsburgh & Lake Erie, and West Virginia 4's, 1951	30,000	28,923.75	27,112
Boston & Maine 4's, 1960	50,000	51,250.00	41,000
Buffalo, Rochester, & Pittsburgh 4½'s, 1957	40,000	33,613.75	26,600
Cleveland Cincinnati, Chicago & St. Louis Ref 4½'s 1977	40,000	38,630.00	28,290
Delaware & Hudson 4's, 1963	30,000	29,343.75	29,400
Lehigh Valley, New York 4½'s, 1950	30,000	28,060.00	21,000
Maine Central 4½'s, 1960	40,000	35,515.00	28,000
Michigan Central 4½'s, 1979	40,000	42,100.00	33,070
St. Louis & San Francisco 4's, 1997	36,600	34,886.59	31,496
Southern Pacific 4½'s, 1969	30,000	29,047.50	27,900
Virginian Corp. 5's, 1952	48,000	48,480.00	48,960
Subtotal		399,850.34	342,828
Utility and industrial:			
American Telephone & Telegraph 2¾'s, 1975	25,000	25,875.00	25,343
Interstate Power 5's, 1957	30,000	29,210.00	30,112
Ward Baking Co. 5½'s, 1970	30,000	32,590.00	31,875
Western Union Telegraph Co. 4½'s, 1950	30,000	26,965.00	27,000
Subtotal		114,640.00	114,330
Other:			
Bond Investment			
Trust of America (1,200 units)		127,992.10	118,860
Total bonds		1,527,791.82	1,458,769
Preferred stocks:			
A. M. Byers Co	400	43,075.00	39,500
Cudahy Packing	400	40,850.00	38,700
Eastern Gas & Fuel	500	36,904.62	32,750
Firestone Tire & Rubber	197	21,413.90	21,029
B. F. Goodrich Tire & Rubber	500	52,950.00	52,125
Jones & Laughlin A	500	51,925.00	47,875
New England Gas & Electric convertibles	300	31,275.00	31,200
Remington Rand	500	52,675.00	50,000
St. Regis Paper Co. A	600	60,000.00	57,600
Total preferred stocks		391,068.52	370,779
Common stocks:			
Industrial:			
American Can	500	52,610.74	50,737
American Chain & Cable	1,000	37,142.32	21,250
Anaconda Copper	1,000	47,555.80	34,875
Anchor Hocking Glass	500	22,618.75	21,562
Beatrice Foods Co	800	50,976.88	36,600
Bendix Aviation	500	25,569.64	15,750
Central Aguirre Sugar	1,000	26,468.54	18,937
Colgate-Palmolive-Peet	700	39,059.70	29,400
Columbia Broadcasting B	1,500	44,447.91	43,125
Eagle-Picher	1,000	24,535.90	22,125
Ferro Enamel	1,000	27,505.78	23,000
First National Stores	500	27,130.00	29,000
General Electric	1,000	48,683.60	35,500
Gillette Safety Razor	500	16,578.69	13,625
Kroger Co	500	24,523.50	24,000
Loew's Inc	800	21,202.95	17,400
National Lead	1,000	36,317.87	31,625
Paramount Pictures	500	12,092.50	13,062
Phelps Dodge	500	18,345.61	20,000
Republic Steel	1,500	41,014.29	36,562
Reynolds Tobacco B	1,000	41,941.81	40,875
Sears, Roebuck	1,000	45,237.50	38,000
Shell Union Oil	1,000	41,904.22	30,875
Sinclair Oil	1,500	28,758.75	23,625
Sperry Corp	700	20,062.33	13,562
Standard Oil of California	800	40,225.06	48,000

Schedule A-2.—*Investments owned as at June 30, 1947*—Continued

	Face amount or number of shares	Book value	Market value
Common stocks—Continued			
Industrial—Continued			
Standard Oil of Indiana	$1,300	$46,043.26	$53,787
Standard Oil of New Jersey	1,100	74,396.23	84,425
Sylvania Electric Products	1,000	39,874.16	22,375
Texas Co	600	32,043.61	38,550
20th Century-Fox Film	1,300	68,445.28	38,187
United Fruit Co	1,000	49,661.05	52,500
United Shoe Machinery	600	43,915.60	38,775
United States Plywood	1,000	34,498.38	29,000
United States Steel	500	36,177.56	33,125
Walgreen Co	1,000	40,751.34	32,750
West Indies Sugar	800	32,422.14	19,000
Subtotal		1,360,739.25	1,175,546
Railroad:			
Atchison	400	43,590.00	31,400
Atlantic Coast Line	500	38,358.02	26,000
Great Northern (preferred)	1,000	57,442.94	41,000
Virginian	600	30,225.18	22,575
Subtotal		169,616.14	120,975
Utility:			
American Gas & Electric	1,155	42,493.00	45,179
Boston Edison	600	32,052.25	27,900
Cleveland Electric	500	19,047.35	20,875
Commonwealth Edison	1,000	30,481.12	30,250
Detroit Edison	1,100	26,275.35	25,850
Houston Lighting & Power	800	33,150.84	36,000
Pacific Gas & Electric Co	1,000	44,244.92	39,000
Pacific Lighting	500	31,415.70	29,000
Philadelphia Electric	1,000	26,275.31	24,000
Subtotal		285,435.84	278,054
Bank:			
Bank of New York, New York	100	41,145.00	34,750
Bankers Trust Co., New York	600	26,125.00	23,850
Chase National Bank, New York	600	25,950.00	21,375
Continental-Illinois, Chicago	400	41,537.50	34,000
First National Bank, Boston	700	32,728.76	34,562
Guaranty Trust, New York	222	63,167.50	60,051
National City, New York	600	27,437.50	24,150
Subtotal		258,091.26	232,738
Finance:			
Beneficial Industrial Loan	1,000	21,466.72	24,000
Commercial Credit	1,135	57,878.95	47,528
Commercial Investment Trust	1,000	57,208.48	43,750
Household Finance	1,085	28,846.66	36,347
Subtotal		165,400.81	151,625
Insurance:			
Aetna Casualty & Surety	200	19,950.00	16,800
American Re-Insurance	450	17,007.00	13,387
American Surety	250	18,750.00	13,594
Continental Casualty	350	19,250.00	18,244
New Amsterdam Casualty	450	16,062.50	11,925
United States Guarantee	200	18,300.00	14,500
Subtotal		109,319.50	88,450
Total common stocks		2,348,602.80	2,047,388
Mortgages and real estate:			
10-16 Manhattan Ave., New York, 3½'s (5 percent part)		5,818.56	[1] 2,500
3d Ave. and 170th St., New York, 3½'s (50 percent part)		27,159.99	[1] 12,000
229-35 E. 79th St., New York 3's (10 percent part)		56,151.34	[1] 40,000
322-24 W. 41st St., New York, (34½ percent part)		25,000.00	[1] 15,000
Subtotal		114,129.89	69,500
Grand total (exhibit A)		4,381,593.03	3,946,436

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[1] Estimated.

EXHIBIT B.—*Statement of capital accounts for the year ended June 30, 1947*

	Total	Current funds			Trust and endowment funds		Plant funds
		General	Restricted		Fund balances	Investment reserve fund	
			Private	Government contracts			
Balance, June 30, 1946	$7,041,539.42	$81,730.30	$1,087,578.21	$190,066.52	$3,961,372.34	$29,717.44	$1,691,074.61
Current operations:							
Income:							
Grants and contracts, including OSRD reimbursement of overhead applicable to prior year ($59,032.77) and Government reimbursement of overhead applicable to current year ($97,152.82)	3,202,834.90	156,185.59	1,230,561.18	1,816,088.13			
Interest and dividends	185,448.19	163,031.76	22,416.43				
Dues	12,736.41	1,940.00	10,796.41				
Sales of publications	38,492.73	3,718.47	34,774.26				
Royalties	7,859.63	233.92	7,625.71				
Other	7,240.24	853.94	6,386.30				
Total income (schedule C–2)	3,454,612.10	325,963.68	1,312,560.29	1,816,088.13			
Expenses:							
U. S. Government projects under subcontracts	1,684,452.23			1,684,452.23			
Fellowships and grants to others	647,760.14		583,221.50	64,538.64			
Salaries and wages	783,953.22	191,175.58	193,042.12	399,735.52			
Fees and other personal services	64,646.29	19,101.72	31,887.79	13,656.78			
Travel	262,736.18	13,268.68	118,207.61	131,259.89			
Publications	44,941.79	3,264.72	41,677.07				
New equipment purchased	12,272.57	3,058.38	5,128.08	4,086.11			
Other (including $2,500 depreciation of equipment)	[1] 617,511.61	37,556.19	[1] 510,695.66	69,259.76			
Total expenses (schedule C–3)	4,118,274.03	267,425.27	1,483,859.83	2,366,988.93			
Excess of expenses over income	−663,661.93	58,538.41	−171,299.54	−550,900.80			

Transfers among fund capital accounts		29,750.00	−25,283.83	−74,466.17	70,000.00		
Net loss on sales of securities	−23,519.64		58.09		−23,577.73		
Cash and securities acquired from American Registry of Pathology (see note 2 to balance sheet)	42,072.23		42,072.23				
Contribution to capital	61.42				61.42		
Refunds to donors and Government agencies	−7,193.49		−4,693.74	−2,499.75			
New equipment purchases transferred to plant funds	8,186.46						8,186.46
Adjustment to bring book value of equipment into agreement with physical inventory	−1,629.09						−1,629.09
Investment reserve fund transferred					29,717.44	−29,717.44	
Balance, June 30, 1947	6,395,855.38	170,018.71	928,431.42	−437,800.20	4,037,573.47		1,697,631.98

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[1] Includes $415,678.73 expenses applicable to streptomycin clinical testing program.

	Fund capital June 30, 1946	Add		Deduct		Fund capital June 30, 1947	Represented by—		
		Income	Other (see note)	Expenses	Other (see note)		Investments	Cash in banks	Other assets
Current general funds:									
National Academy of Sciences:									
Carnegie Endowment Fund, income	$99,558.63	$153,449.89		$66,729.88	$41,589.77	$144,688.87	$100,000.00	$44,688.87	
Academy general fund	−21,532.24	83,354.74	$32,283.41	93,000.49		1,105.42	8,952.37	−11,042.37	$3,195.42
Agassiz Fund, income		1,138.55			1,138.55				
Neally Fund, income		444.86			444.86				
Total	78,026.39	238,388.04	32,283.41	159,730.37	43,173.18	145,794.29	108,952.37	33,646.50	3,195.42
National Research Council: Council general fund	3,703.91	87,575.64	44,589.77	107,694.90	3,950.00	24,224.42	152,165.35	−130,040.93	2,100.00
Total current general funds	81,730.30	325,963.68	76,873.18	267,425.27	47,123.18	170,018.71	261,117.72	−96,394.43	5,295.42
Current restricted funds:									
National Academy of Sciences:									
Government projects:									
Academy emergency grant, Academy Government projects	15,512.37	7,310.96		329.00	22,494.33				
Pacific area project	−694.94	694.94							
Editorial Board on Penicillin	−1,499.44	510.69		2,904.98		−3,893.73		−3,913.73	20.00
	13,317.99	8,516.59		3,233.98	22,494.33	−3,893.73		−3,913.73	20.00
Less reimbursable overhead expenses allocated to the above Government projects, also reflected in current general funds		61.99		61.99					
Total Government projects (NAS)	13,317.99	8,454.60		3,171.99	22,494.33	−3,893.73		−3,913.73	20.00
Private grants and other projects:									
Academy Emergency grant	44,664.36	1.00	90,054.68	375.28	84,366.21	49,978.55		49,553.55	425.00
Academy Proceedings	7,882.92	1,983.60	1,128.92		2,500.00	8,495.44		8,495.44	
Autumn meeting, foreign visitors' fund		37,000.00		35,921.09		1,078.91		1,078.91	
Bache Fund income	12,992.77	2,424.71	37.49	1,059.99		14,394.98	6,000.00	8,394.98	
Billings Fund income		1,153.04		24.12	1,128.92				
Building site fund	9,681.21	457.80		9.41		10,129.60	10,129.60		
Building and grounds repair fund	40,539.60			32,110.98		8,428.62		8,428.62	
John J. Carty Medal and award income	2,276.50	1,139.46		2,855.42		560.54		560.54	
Conference on bioelectric potentials			866.21	866.21					
Comstock Fund income	7,628.52	580.22	20.60	13.34		8,216.00	1,000.00	7,216.00	
Conference on wave mechanics of the electron			1,500.00	872.84		627.16		627.16	
Draper Fund income	1,954.26	454.98		1,234.41		1,174.82		1,174.82	
Elliot Fund income	1,390.19	362.67		435.04		1,317.82		1,317.82	
Emergency Fund Proceedings	3,327.79					3,327.79		3,327.79	

Gibbs Fund income	4,780.31	248.99		4.91		5,024.39		5,024.39	
Gould Fund income	14,322.08	1,307.30		826.11		14,803.27	10,000.00	4,803.27	
Hale lectureship	385.55					385.55		385.55	
Hartley Fund income	498.31	54.78		1.23		551.86		551.86	
Joseph Henry Fund income	4,731.58	2,147.75		648.94		6,230.39		6,230.39	
Joint Proceedings	14,600.61	4,556.60	5,000.00	5,826.24		18,330.97		18,305.97	25.00
Marsh Fund income	3,791.81	910.49		1,068.82		3,633.48		3,633.48	
Memorial Hospital survey				4,232.91		−4,232.91		−4,232.91	
Murray Fund income	2,423.66	454.98		676.25		2,202.39		2,202.39	
National Park problems	80.79					80.79		80.79	
National Science Fund	74,751.11	1,384.14		13,077.66		63,057.59	35,000.00	28,057.59	
Retirement fund income	2,395.55	4,532.28		3,158.40		3,769.43		3,769.43	
Scientific mission to Japan		7,500.00				7,500.00		4,500.00	3,000.00
Scientific publication fund	1,809.44	48.00				1,857.44		1,857.44	
Special insurance fund	8,075.00				8,075.00				
Smith Fund income	11,525.05	797.42		520.70		11,801.77	9,000.00	2,801.77	
Thompson Fund income	1,523.79	454.98		1,124.25		854.52		854.52	
Walcott Fund income	1,660.40	225.61		4.50		1,881.51		1,881.51	
Watson Fund income	9,089.23	1,123.56		375.45		9,837.34		9,837.34	
Total private grants and other projects (NAS)	288,782.38	71,304.36	98,607.90	107,324.50	96,070.13	255,300.01	71,129.60	180,720.41	3,450.00
Total current restricted funds (NAS)	302,100.37	79,758.96	98,607.90	110,496.49	118,564.46	251,406.28	71,129.60	176,806.68	3,470.00
National Research Council.									
Government projects:									
Division of Physical Sciences: Nuclear science (ONR Task V)				235.91		−235.91		−235.91	
Division of Engineering and Industrial Research.									
Highway Research Board		20,000.00		20,000.00					
Metallurgical advisory committee (OSRD)	−23,338.30	33,939.96		711.78	10,000.00	−110.12		−110.12	
Quartermaster Corps problems	−34,630.14	301,592.94		301,475.08		−34,512.28		−34,762.28	250.00
Aluminum salvage project	−3,348.76	8,348.76			5,000.00				
Engineering Information Service	6,065.51			80.00		5,985.51		5,985.51	
Board for Prosthetic and Sensory Devices	113,699.45	1,332,202.59		1,604,778.51		−158,876.47		−161,396.47	2,520.00
Coast Guard problems	9,153.03			8,250.16	902.87				
Ship welding research	−5,041.08	24,978.87		26,080.86		−6,143.07		−6,443.07	300.00
Transportation Corps problems		15,311.99		17,102.99		−1,791.00		−1,791.00	
Division of Medical Sciences:									
Committee on military medicine, revolving fund	38,828.59	10,146.04		10,086.92		38,887.71		38,887.71	
Medical food requirements	5,832.67	166.67			5,999.34				
Committee on civil aviation medicine	2,771.00	3,000.00		3,888.80		1,882.20		1,882.20	
Insect control committee	3,949.34	21,860.03		6,308.15		19,501.22		19,501.22	
Veterans' medical problems	−1,933.06	2,535.87		30,860.11		−30,257.30		−30,257.30	
Medical advisory committees		27,632.40		58,516.32		−30,883.92		−30,883.92	
Committee on aviation medicine				13,026.51		−13,026.51		−13,026.51	
Crash injury research				13,500.00		−13,500.00		−13,500.00	

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1947*—Continued

	Fund capital June 30, 1946	Add		Deduct		Fund capital June 30, 1947	Represented by—		
		Income	Other (see note)	Expenses	Other (see note)		Investments	Cash in banks	Other assets
Current restricted funds—Continued									
National Research Council—Continued									
Government projects—Continued									
Division of Biology and Agriculture:									
Food and Nutrition Board	$12, 688. 79	$1, 300. 97			$13, 989. 76				
Committee on food composition	2, 046. 99	18, 559. 75		$10, 610. 01	9, 996. 73				
Committee on control of deterioration	−10, 677. 24	27, 954. 08		76, 891. 60		−$59, 614. 76		−$59, 614. 76	
Food research survey		3, 360. 28		6, 227. 58		−2, 867. 30		−2, 867. 30	
Division of Anthropology and Psychology:									
Aircraft pilots:									
1943	1, 005. 68			−1, 581. 84	358. 50	2, 229. 02		2, 229. 02	
1944	1, 163. 49			991. 36		172. 13		172. 13	
1945	33, 930. 77			33, 171. 38		759. 39		759. 39	
1946	14, 026. 52	20, 000 00		32, 641. 58		1, 384. 94		1, 384. 94	
1947				45, 121. 73		−45, 121. 73		−45, 521. 73	$400. 00
Committee on food habits	6, 986. 01				6, 986. 01				
Committee on applied psychology and the war	−745. 42	1, 721. 17		975. 75					
Executive Board:									
Pacific Science Board, anthropological research				4, 544. 35		−4, 544. 35		−5, 844. 35	1, 300. 00
Key roster of scientific personnel		8, 889. 32		15, 442. 72		−6, 553. 40		−6, 553. 40	
Bibliographic service to Central and South America	4, 314. 69			3, 076. 31	1, 238. 38				
Scientific personnel survey				15, 706. 21		−15, 706. 21		−15, 706. 21	
Office of Scientific Personnel		9, 500. 00		9, 259. 48		240. 52		240. 52	
Chemical biological Coordination Center				64, 148. 09		−64, 148. 09		−64, 148. 09	
Advisory committees, Navy		4, 705. 72		5, 940. 77		−1, 235. 05		−1, 235. 05	
Committee on Undersea Warfare		7, 016. 95		22, 838. 59		−15, 821. 64		−15, 821. 64	
	176, 748. 53	1, 904, 724. 36		2, 460, 907. 77	54, 471. 59	−433, 906. 47		−438, 676. 47	4, 770. 00
Less reimbursable overhead expenses allocated to the above Government projects, also reflected in current general funds		97, 090. 83		97, 090. 83					
Total Government projects (NRC)	176, 748. 53	1, 807, 633. 53		2, 363, 816. 94	54, 471. 59	−433, 906. 47		−438, 676. 47	4, 770. 00
Private grants and other projects (NRC):									
Division of Physical Sciences:									
Revolving fund for publication of mathematical books	1, 827. 60	1, 022. 44				2, 850. 04		2, 850. 04	
Publication of Research in Biophysics	1, 000. 00					1, 000. 00		1, 000. 00	

Rotating fund physics committee	10, 193. 56	563. 84				10, 757. 40		10, 757. 40	
Revolving fund for publication of mathematical tables	12, 682. 25	41. 40				12, 723. 65		12, 723. 65	
Journal of mathematical tables	819. 97	2, 605. 67	$500. 00	2, 869. 93		1, 055. 71		1, 055. 71	
Division of Engineering and Industrial Research:									
Highway Research Board	44, 229. 50	85, 540. 81		85, 818. 37		43, 951. 94		43, 451. 94	500. 00
Heat transmission	373. 75					373. 75		373. 75	
Nonrigid pavement project	286. 38	8, 925. 00		8, 763. 33		448. 05		448. 05	
Committee on fatigue in industry	205. 87			37. 59		168. 28		168. 28	
Calcium chloride stabilization	1, 627. 48	2, 400. 00		2, 074. 39		1, 953. 09		1, 953. 09	
Conference on electrical insulation		1, 570. 00	1, 000. 00	92. 47		2, 477. 53		2, 477. 53	
Building Research Advisory Board			1, 066. 74			1, 066. 74		1, 066. 74	
Division of Chemistry and Chemical Technology:									
Fellowship in protein chemistry	262. 03					262. 03		262. 03	
Committee on chemical data for ceramists	900. 20	272. 01				1, 172. 21		1, 172. 21	
Committee on catalysis	438. 50	70. 50				509. 00		509. 00	
Division of Geology and Geography:									
Committee on a symposium on sedimentation	1, 250. 11	25. 74				1, 275. 85		1, 275. 85	
Ore deposits as related to structural features		615. 45		615. 45					
Division of Medical Sciences:									
Sex research fund	33. 97	71, 156. 26		71, 187. 27		2. 96		2. 96	
Fellowships in medicine	1, 275. 46	26, 324. 54		25, 180. 77		2, 419. 23		2, 419. 23	
Committee on endocrinology	298. 32	49, 419. 81		48, 537. 03		1, 181. 10		1, 181. 10	
Fellowships in virus studies and orthopedics	56, 538. 98	50, 000. 00		74, 405. 75		32, 133. 23		32, 133. 23	
Special medical committees, Carnegie Corp	3, 986. 96	32. 80		990. 13		3, 029. 63		3, 029. 63	
Welch fellowships	1, 231. 41	17, 976. 92		16, 270. 25		2, 938. 08		2, 938. 08	
War medical information	3, 918. 08			3, 120. 83		797. 25		797. 25	
Lectures in pathology	4, 627. 78				4, 627. 78				
Committee on growth	76, 917. 97	99, 432. 03		107, 732. 69		68, 617. 31		54, 210. 06	14, 407. 25
Fellowships in anesthesia	12, 783. 09	4, 908. 93		6, 315. 87		11, 376. 15		11, 376. 15	
Streptomycin clinical testing program	262, 267. 99	292, 820. 74		433, 616. 44		121, 472. 29		121, 472. 29	
American Registry of Pathology		26, 057. 95	42, 072. 23	24, 638. 21		43, 491. 97	$26, 283. 93	14, 008. 04	3, 200. 00
Crash injury research		6, 925. 00		6, 166. 85		758. 15		258. 15	500. 00
Committee on drug addiction		5, 000. 00		853. 06		4, 146. 94		4, 146. 94	
Division of Biology and Agriculture:									
Committee on animal nutrition	385. 76	508. 93		634. 87		259. 82		259. 82	
Committee on human heredity	65. 96				65. 96				
Committee on aerobiology	1, 464. 18					1, 464. 18		1, 464. 18	
Nutrition foundation fund	2, 752. 11				2, 752. 11				
Milbank Memorial Fund	5, 240. 09				5, 240. 09				
Committee on nutritional aspects of aging	4, 195. 14			2, 747. 96		1, 447. 18		1, 447. 18	
Joint committee on Forestry	286. 41			286. 41					

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1947*—Continued

	Fund capital June 30, 1946	Add		Deduct		Fund capital June 30, 1947	Represented by—		
		Income	Other (see note)	Expenses	Other (see note)		Investments	Cash in banks	Other assets
Current restricted funds—Continued									
National Research Council—Continued									
Private grants and other projects (NRC)—Con.									
Division of Biology and Agriculture—Con.									
Tropical plant research fund	$4, 256. 58					$4, 256. 58		$4, 256. 58	
Agricultural Board	18, 037. 61	$1, 510. 65		$10, 734. 81		8, 813. 45		8, 813. 45	
General account, Food and Nutrition Board	1, 238. 80				$1, 238. 80				
Committee on control of deterioration		1, 552. 50		1, 120. 00		432. 50		432. 50	
Food and Nutrition Board	7, 303. 36	22, 607. 13	$12, 227. 73	20, 823. 53	510. 24	20, 804. 45		20, 729. 45	$75. 00
American Institute of Biological Sciences		75. 00	300. 00	328. 03		46. 97		−253. 03	300. 00
Division of Anthropology and Psychology:									
National intelligence tests	3, 854. 52	285. 22				4, 139. 74		4, 139. 74	
Child development abstracts	2, 119. 57	6, 054. 73		7, 057. 71		1, 116. 59		1, 116. 59	
Directory of anthropologists	59. 25	2, 018. 20				2, 077. 45		2, 077. 45	
Psychological techniques for military service	403. 11					403. 11		403. 11	
Obesity and allergy in childhood	345. 44					345. 44		345. 44	
Textbook in military psychology fund	8, 645. 70	499. 88		45. 67		9, 099. 91		9, 099. 91	
Executive Board:									
International critical tables	41, 508. 61	4, 577. 50			5, 000. 00	41, 086. 11	$41, 086. 11		
Annual tables	3, 097. 18		5, 000. 00	4, 859. 17		3, 238. 01		3, 238. 01	
Committee on scientific aids to learning	10, 000. 00				10, 000. 00				
Subcommittee on individual hearing aids	3, 429. 46			956. 88		2, 472. 58		2, 472. 58	
Subcommittee on group hearing aids	3, 152. 34		10, 000. 00	130. 48		13, 021. 86		13, 021. 86	
Ethnogeographic Board, joint fund	15, 882. 21			1, 242. 41		14, 639. 80		14, 639. 80	
Central purposes fund	100, 737. 94			17, 898. 98	35, 953. 50	46, 885. 46		46, 885. 46	
Office of Scientific Personnel	3, 876. 14	16, 450. 00	2, 650. 00	14, 247. 38		8, 728. 76		8, 428. 76	300. 00
Fellowships in the natural sciences	12, 032. 95	46, 496. 13		55, 865. 30		2, 663. 78		2, 663. 78	
Chemical Biological Coordination Center		20, 000. 00		18, 281. 13		1, 718. 87		1, 718. 87	
Patent policy survey		15, 000. 00		14, 236. 26		763. 74		763. 74	
Pacific science office		15, 500. 00		9, 313. 44		6, 186. 56		4, 736. 56	1, 450. 00
Merck fellowships				1, 766. 01		−1, 766. 01		−1, 766. 01	
Chemical abstracts union list		905. 25		905. 25					
Pacific Science Board, anthropological research		8, 000. 00				8, 000. 00		8, 000. 00	
Handbook of scientific and technical societies			10, 000. 00	548. 06		9, 451. 94		9, 451. 94	
Library book fund	4, 426. 33	1, 639. 73		1, 301. 22		4, 764. 84		4, 764. 84	
American Geophysical Union		12, 000. 00		12, 000. 00					
Industrial research laboratories	10, 213. 69	6, 996. 86		6, 884. 99	10, 000. 00	325. 56		325. 56	
Predoctoral fellowships	11, 900. 20	244, 998. 80		245, 487. 98		11, 411. 02		11, 411. 02	

Committee on neurobiology	935.59	2,000.00		587.87		2,347.72		2,347.72	
Scientific and technical bibliography	406.54	1,996.58		2,403.12					
Naples Zoological station	868.50	600.00		1,442.15		26.35		26.35	
Survey subcommittee, Latin-American anthropology	1,160.11		186.76	1,346.87					
Fellowships in the social and natural sciences		50,000.00				50,000.00		50,000.00	
National Bureau of Standards projects (with respect to which the NRC functions only as a fiscal agent):									
Problems of refrigeration	677.37					677.37		677.37	
Impermanency of records	132.70					132.70		132.70	
Acoustic properties of materials	924.01			367.48		556.53		556.53	
Thermal properties of liquids	2,362.54					2,362.54		2,362.54	
Fire resistance of materials	242.00	5,275.00		325.01		5,191.99		5,191.99	
Current meter investigations	126.62			114.45		12.17		12.17	
Thermal investigations	1,194.21			269.31		924.90		924.90	
Ignition research	924.50			98.43		826.07		826.07	
Acidity of citrus fruits	8.44					8.44		8.44	
Motion picture projection equipment	1,776.70					1,776.70		1,776.70	
Construction of high-precision standards	1,418.05					1,418.05		1,418.05	
Experimental optical glass	51.82					51.82		51.82	
Investigations on stainless steel sheets	365.83			365.75		.08		.08	
Investigation of high-strength reinforcement of concrete	4,332.45			224.28		4,108.17		4,108.17	
Total private grants and other projects (NRC)	798,795.83	1,241,255.93	85,003.46	1,376,535.33	75,388.48	673,131.41	67,370.04	585,029.12	20,732.25
Total current restricted funds (NRC)	975,544.36	3,048,889.46	85,003.46	3,740,352.27	129,860.07	239,224.94	67,370.04	146,352.65	25,502.25
Total current restricted funds	1,277,644.73	3,128,648.42	183,611.36	3,850,848.76	248,424.53	490,631.22	138,499.64	323,159.33	28,972.25

EXHIBIT C.—*Statement of fund transactions for the year ended June 30, 1947*—Continued

	Fund capital June 30, 1946	Add		Deduct		Fund capital June 30, 1947	Represented by—		
		Income	Other (see note)	Expenses	Other (see note)		Investments	Cash in banks	Other assets
Trust and endowment funds:									
National Academy of Sciences:									
Bache Fund, principal	$60,000.00					$60,000.00	$59,913.12	$86.88	
Carnegie Endowment Fund, principal	3,550,000.00				$3,550,000.00				
Comstock Fund, principal	15,000.00					15,000.00	14,996.05	3.95	
Consolidated fund, principal	291,372.34		$3,674,778.86		23,577.73	3,942,573.47	3,887,077.70	55,495.77	
Gould Fund, principal	20,000.00					20,000.00	19,988.80	11.20	
Watson Fund, principal	25,000.00				25,000.00				
	3,961,372.34		3,674,778.86		3,598,577.73	4,037,573.47	3,981,975.67	55,597.80	
Investment reserve fund	29,717.44				29,717.44				
Total trust and endowment funds	3,991,089.78		3,674,778.86		3,628,295.17	4,037,573.47	3,981,975.67	55,597.80	
Plant funds	1,691,074.61		6,557.37			1,697,631.98		20,842.89	$1,676,789.09
Grand total	7,041,539.42	$3,454,612.10	3,941,820.77	$4,118,274.03	3,923,842.88	6,395,855.38	4,381,593.03	303,205.59	1,711,056.76

NOTE.—Other transactions represent the following:

	Addition	Deduction
Transfers of funds:		
From Carnegie Endowment Fund ($3,550,000), Watson Fund ($25,000), and investment reserve fund ($29,717.44) to consolidated fund	$3,604,717.44	$3,604,717.44
Allocations of income, etc	288,354.22	288,354.22
Assets acquired:		
Cash and securities from American Registry of Pathology	42,072.23	
New equipment purchased ($8,186.46), less adjustment to bring book value of equipment at June 30, 1947, into agreement with physical inventory	6,557.37	
Contribution to capital	61.42	
Profit or loss on sales of securities	58.09	23,577.73
Refunds to donors and Government agencies		7,193.49
Total	3,941,820.77	3,923,842.88

SCHEDULE C–1.—*Consolidated fund*

	Balances July 1, 1946	Increases	Balances June 30, 1947	Investment income distributed
Current general funds (income from which is for general purposes):				
Academy general fund		$8,952.37	$8,952.37	$2,045.92
Carnegie Endowment Fund, income		100,000.00	100,000.00	4,182.05
Council general fund		152,165.35	152,165.35	6,113.95
Total		261,117.72	261,117.72	12,341.92
Current restricted funds (income from which is for specific purposes):				
American Registry of Pathology		18,283.93	18,283.93	412.79
Bache Fund, income		6,000.00	6,000.00	325.98
Building site fund		10,129.60	10,129.60	457.80
Comstock Fund, income		1,000.00	1,000.00	56.63
Gould Fund, income		10,000.00	10,000.00	544.70
International critical tables		41,086.11	41,086.11	1,639.73
National Science Fund		35,000.00	35,000.00	1,384.14
Smith Fund, income		9,000.00	9,000.00	342.44
Total		130,499.64	130,499.64	5,164.21
Trust and endowment funds:				
Income from which is for general purposes:				
Agassiz Fund, principal	$50,000.00		50,000.00	1,131.40
Carnegie Endowment Fund, principal		3,550,000.00	3,550,000.00	149,010.38
Nealley Fund, principal	19,555.55		19,555.55	442.08
Total	69,555.55	3,550,000.00	3,619,555.55	150,583.86
Income from which is for specific purposes:				
Billings Fund, principal	25,258.39	61.42	25,319.81	1,149.64
John J. Carty Medal and award, principal	25,000.00		25,000.00	1,135.88
Draper Fund, principal	10,000.00		10,000.00	453.55
Elliot Fund, principal	8,000.00		8,000.00	361.53
Gibbs Fund, principal	5,545.50		5,545.50	248.19
Hartley Fund, principal	1,200.00		1,200.00	54.61
Joseph Henry Fund, principal	47,163.50		47,163.50	2,141.29
Marsh Fund, principal	20,000.00		20,000.00	907.63
Murray Fund, principal	10,000.00		10,000.00	453.55
Retirement fund, principal	44,649.40	70,000.00	114,649.40	4,525.89
Smith Fund, principal	10,000.00		10,000.00	453.55
Thompson Fund, principal	10,000.00		10,000.00	453.55
Walcott Fund, principal	5,000.00		5,000.00	224.89
Watson Fund, principal		25,000.00	25,000.00	1,123.56
Investment reserve		6,139.71	6,139.71	
Total	291,372.34	3,651,201.13	3,942,573.47	164,271.17
Grand total	291,372.34	4,042,818.49	4,334,190.83	181,777.30

SCHEDULE C–1 (a).—*Trust and endowment funds as at June 30, 1947*

A. Principal of funds, the income from which may be used for general purposes:	
Agassiz Fund: Bequest of Alexander Agassiz, a member of the Academy	$50,000.00
Carnegie Endowment Fund: By resolution voted Mar. 28, 1919, and later amendments, the Carnegie Corp. of New York pledged $5,000,000 for the purposes of the Academy and the National Research Council, $1,450,000 of this sum to pay for the erection of a building and $3,550,000 to be capitalized at such times as convenient to the corporation in view of its other obligations; the amount remaining in the hands of the corporation to bear interest at the rate of 5 percent per annum; 7 installments completing capitalization	3,550,000.00
Nealley Fund: Bequest of $20,896.01 of George True Nealley in 1925 for the general purposes of the Academy, less refund of $1,500 in November 1926, to a creditor of the estate; this was supplemented by an additional sum of $159.54 from the estate in March 1931	19,555.55

SCHEDULE C–1 (a).—*Trust and endowment funds as at June 30, 1947*—Continued

B. Principal of funds, the income from which may be used for specifically designated purposes:	
Bache Fund: Bequest of Alexander Dallas Bache, a member of the Academy (1870), to aid researches in physical and natural sciences	$60, 000. 00
Billings Fund: Bequest of Mrs. Mary Anna Palmer Draper (Mrs. Henry Draper) in 1915, to support the publication of the Proceedings of the Academy or for other purposes to be determined by the Academy (the estate is still in process of distribution)	25, 319. 81
John J. Carty Medal and Award for the Advancement of Science: Gift of the American Telephone & Telegraph Co. on Nov. 13, 1930, in recognition of the distinguished achievements of John J. Carty as scientist and engineer, and his noteworthy contributions to the advancement of fundamental and applied science, and in appreciation of his great services for many years in developing the art of electrical communication, and as a lasting testimonial of the love and esteem in which he was held by his many thousand associates in the Bell System; the income thereof to be used for a gold medal and award, not oftener than once in 2 years, by vote of the Academy, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy	25, 000. 00
Comstock Fund: Gift of Gen. Cyrus B. Comstock, a member of the Academy (1907), to promote researches in electricity, magnetism, or radiant energy through the Comstock prize money to be awarded once in 5 years for notable investigations. This fund has been increased from $12,406.02 to $15,000 by profit from sale of bonds and by transfer from income to capital	15, 000. 00
Draper Fund: Gift of Mrs. Henry Draper in 1883 in memory of her husband, a former member of the Academy, to found the Henry Draper Medal to be awarded for notable investigations in astronomical physics; the balance of income is applied to aid research in this science	10, 000. 00
Elliot Fund: Gift of Margaret Henderson Elliot to found the Daniel Giraud Elliot Gold Medal and honorarium for the most meritorious work on zoology or paleontology published in each year	8, 000. 00
Gibbs Fund: Established by gift of Wolcott Gibbs, a member of the Academy (1892), and increased by a bequest of the late Morris Loeb in 1914 for the promotion of researches in chemistry	5, 545. 50
Gould Fund: Gift of Miss Alice Bache Gould in 1897 in memory of her father, a former member of the Academy, for the promotion of researches in astronomy	20, 000. 00
Hartley Fund: Gift from Mrs. Helen Hartley Jenkins, 1913–14, in memory of her father, Marcellus Hartley, to found the medal of the Academy awarded for eminence in the application of science to public welfare	1, 200. 00

SCHEDULE C-1 (a).—*Trust and endowment funds as at June 30, 1947*—Continued

B. Principal of funds, the income from which may be used for specificially designated purposes—Continued

Joseph Henry Fund: Contribution of $40,000 by Fairman Rogers, Joseph Patterson, George W. Childs, and others as an expression of their respect and esteem for Prof. Joseph Henry; this sum was deposited with the Pennsylvania Co. for Insurance of Lives and Granting Annuities in trust, with authorization to collect the income thereon and to pay over the same to Prof. Joseph Henry during his natural life, and after his death to his wife and daughters, and after the death of the last survivor to "deliver the said fund and the securities in which it shall then be invested to the National Academy of Sciences, to be thenceforward forever held in trust under the name and title of 'the Joseph Henry Fund.'" The death of Miss Caroline Henry on November 10, 1920, removed the last surviving heir of Joseph Henry to the income of the Joseph Henry Fund. The purpose of this fund is to assist meritorious investigators, especially in the direction of original research. The Academy received $39,739.57 from the Pennsylvania Co. for Insurance of Lives and Granting Annuities, to which was added $7,423.93 from income	47, 163. 50
Marsh Fund: Bequest of Othniel Charles Marsh, a member of the Academy (1909), to promote original research in the natural sciences; to the original bequest of $10,000 the Academy has added interest received from the estate and has authorized the increase of the fund to $20,000 by annual additions from income	20, 000. 00
Murray Fund: Gift from the late Sir John Murray in 1911 to found the Alexander Agassiz Gold Medal in honor of a former member and president of the Academy, to be awarded for original contribution to the science of oceanography. The sum of $4,000 has been added to the original bequest of $6,000 by transfer from income to capital	10, 000. 00
Smith Fund: Gift of Mrs. J. Lawrence Smith in 1884 in memory of her husband, a former member of the Academy, to found the J. Lawrence Smith Gold Medal to be awarded for important investigations of meteoric bodies and to assist, by grants of money, researches concerning such objects	10, 000. 00
Thompson Fund: Gift of Mrs. Mary Clark Thompson, in 1919, the income thereof to be applied for a gold medal of appropriate design, to be known as the Mary Clark Thompson Gold Medal and to be awarded annually for the most important services to geology and paleontology	10, 000. 00
Walcott Fund: Gift of Mrs. Mary Vaux Walcott in 1928, in honor of her husband, a former member and president of the Academy, the income thereof to be used for the award of medals and honoraria to persons, the results of whose published researches, explorations, and discoveries in pre-Cambrian or Cambrian life and history, shall be judged most meritorious; the award to be known as the Charles Doolittle Walcott Medal and to be made every 5 years	5, 000. 00
Watson Fund: Bequest of James Craig Watson, a member of the Academy (1874), for the promotion of astronomical science through the award of the Watson Gold Medal and grants of money in aid of research	25, 000. 00

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1947*

		Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current general funds:									
National Academy of Sciences:									
Carnegie Endowment Fund, income		$153, 449. 89	$153, 288. 48						$161. 41
Academy general fund		83, 354. 74	2, 045. 92		[1] $79, 176. 29	$1, 940. 00			192. 53
[1] Office of Scientific Research and Development, reimbursement for a portion of administrative overhead applicable to the year 1945–46	$38, 171. 05								
Transfer from various Government projects for a portion of administrative overhead applicable to the year 1946–47	41, 005. 24								
Total	79, 176. 29								
Agassiz Fund, income		1, 138. 55	1, 138. 55						
Nealley Fund, income		444. 86	444. 86						
Total current general funds (NAS)		238, 388. 04	156, 917. 81		79, 176. 29	1, 940. 00			353. 94
National Research Council:									
Council general fund		87, 575. 64	6, 113. 95		[2] 77, 009. 30		$3, 718. 47	$233. 92	500. 00
[2] Office of Scientific Research and Development, reimbursement for a portion of administrative overhead applicable to the year 1945–46	$20, 861. 72								
Transfer from various Government projects for a portion of administrative overhead applicable to the year 1946–47	56, 147. 58								
Total	77, 009. 30								
Total current general funds		325, 963. 68	163, 031. 76		156, 185. 59	1, 940. 00	3, 718. 47	233. 92	853. 94
Current restricted funds:									
National Academy of Sciences:									
Government projects:									
Academy emergency grant, Academy, Government projects		7, 310. 96			[3] 7, 310. 96				
[3] Office of Scientific Research and Development	$6, 978. 64								
War Department	332. 32								
Total	7, 310. 96								

Pacific area project	694.94			[4] 694.94				
Editorial Board on Penicillin	510.69			[4] 510.69				
[4] Office of Scientific Research and Development.								
Subtotal	8,516.59			8,516.59				
Less transfer of overhead reimbursement to general funds	−61.99			−61.99				
Total Government projects (NAS)	8,454.60			8,454.60				
Private grants and other projects:								
Academy emergency grant	1.00							1.00
Academy Proceedings	1,983.60				1,940.00	43.60		
Autumn meeting, foreign visitors' fund	37,000.00		[5] $37,000.00					
[5] Rockefeller Foundation $18,500.00								
Carnegie Corp. of New York 18,500.00								
Total 37,000.00								
Bache Fund, income	2,424.71	2,424.71						
Billings Fund, income	1,153.04	1,153.04						
Building site fund	457.80	457.80						
John J. Carty Medal and award, income	1,139.46	1,139.46						
Comstock Fund, income	580.22	580.22						
Draper Fund, income	454.98	454.98						
Elliot Fund, income	362.67	362.67						
Gibbs Fund, income	248.99	248.99						
Gould Fund, income	1,307.30	1,307.30						
Hartley Fund, income	54.78	54.78						
Joseph Henry Fund, income	2,147.75	2,147.75						
Joint Proceedings	4,556.60					4,556.60		
Marsh Fund, income	910.49	910.49						
Murray Fund, income	454.98	454.98						
National Science Fund	1,384.14	1,384.14						
Retirement fund, income	4,532.28	4,532.28						
Scientific mission to Japan (Rockefeller Foundation)	7,500.00		7,500.00					
Scientific publications fund	48.00					45.00	3.00	
Smith Fund, income	797.42	797.42						
Thompson Fund, income	454.98	454.98						
Walcott Fund, income	225.61	225.61						
Watson Fund, income	1,123.56	1,123.56						
Total private grants and other projects (NAS)	71,304.36	20,215.16	44,500.00		1,940.00	4,645.20	3.00	1.00
Total current restricted funds (NAS)	79,758.96	20,215.16	44,500.00	8,454.60	1,940.00	4,645.20	3.00	1.00

SCHEDULE C–2.—*Statement of income for the year ended June 30, 1947*—Continued

	Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued								
National Research Council—Con.								
Government projects:								
Division of Engineering and Industrial Research:								
Highway Research Board (Public Roads Administration)	$20,000.00			$20,000.00				
Metallurgical advisory committee (OSRD) (Office of Scientific Research and Development)	33,939.96			33,939.96				
Quartermaster Corps problems (War Department)	301,592.94			301,592.94				
Aluminum salvage project (Reconstruction Finance Corporation)	8,348.76			8,348.76				
Board for Prosthetic and Sensory Devices	1,332,202.59			[6] 1,332,202.59				
[6] War Department $155,711.29								
Veterans' Administration 1,172,105.91								
Office of Scientific Research and Development 4,385.39								
Total 1,332,202.59								
Ship welding research (Navy Department)	24,978.87			24,978.87				
Transportation Corps problems (War Department)	15,311.99			15,311.99				
Division of Medical Sciences:								
Committees on Military Medicine, revolving fund (Office of Scientific Research and Development)	10,146.04			10,146.04				
Medical food requirements (Department of Agriculture)	166.67			166.67				
Committee on Civil Aviation Medicine (Civil Aeronautics Administration)	3,000.00			3,000.00				
Insect control committee (Office of Scientific Research and Development)	21,860.03			21,860.03				
Veterans' medical problems (Veterans' Administration)	2,535.87			2,535.87				
Medical advisory committees (Veterans' Administration)	27,632.40			27,632.40				
Division of Biology and Agriculture:								
Food and Nutrition Board (Department of Agriculture)	1,300.97			1,300.97				
Committee on food composition (War Department)	18,559.75			18,559.75				
Committee on control of deterioration (Navy Department)	27,954.08			27,954.08				
Food research survey (War Department)	3,360.28			3,360.28				

Division of Anthropology and Psychology:								
Committee on applied psychology and the war (Office of Scientific Research and Development)	1,721.17			1,721.17				
Aircraft pilots, 1946 (Civil Aeronautics Administration)	20,000.00			20,000.00				
Executive Board:								
Key roster of scientific personnel (Navy Department)	8,889.32			8,889.32				
Office of Scientific Personnel	9,500.00			[7] 9,500.00				
[7] President's Scientific Research Board ... $5,000								
President's Commission on Higher Education ... 4,500								
Total ... 9,500								
Advisory committees, Navy (Navy Department)	4,705.72			4,705.72				
Committee on undersea warfare (Navy Department)	7,016.95			7,016.95				
Subtotal	1,904,724.36			1,904,724.36				
Less overhead transferred to general funds	−97,090.83			−97,090.83				
Total Government projects (NRC)	1,807,633.53			1,807,633.53				
Private grants and other projects (NRC):								
Division of Physical Sciences:								
Revolving fund for publication of mathematical books	1,022.44						$1,022.44	
Rotating fund, physics committees	563.84					$166.95	396.89	
Revolving fund for publication of mathematical tables	41.40					41.40		
Journal of mathematical tables	2,605.67					2,605.67		
Division of Engineering and Industrial Research:								
Highway Research Board	85,540.81		[8] $2,175.00		$8,856.41	4,417.40		[9] $70,092.00
[8] Asphalt Institute ... $1,575								
Calcium Chloride Association ... 600								
Total ... 2,175								
[9] Correlation service.								
Nonrigid pavement project (the Asphalt Institute)	8,925.00		8,925.00					
Calcium chloride stabilization (the Calcium Chloride Association)	2,400.00		2,400.00					
Conference on Electrical Insulation (registration fees)	1,570.00							1,570.00
Division of Chemistry and Chemical Technology:								
Committee on chemical data for ceramists	272.01					272.01		
Committee on catalysis	70.50						70.50	
Division of Geology and Geography:								
Committee on a symposium on sedimentation	25.74					25.74		
Ore deposits as related to structural features	615.45						615.45	

SCHEDULE C-2.—*Statement of income for the year ended June 30, 1947*—Continued

		Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued									
National Research Council—Continued									
Private grants and other projects (NRC)—Continued									
Division of Medical Sciences:									
Sex research fund (the Rockefeller Foundation)		$71,156.26		$71,156.26					
Fellowships in medicine (the Rockefeller Foundation)		26,324.54		26,324.54					
Committee on endocrinology (the John and Mary R. Markle Foundation)		49,419.81		49,419.81					
Fellowships in virus studies and orthopedics (the National Foundation for Infantile Paralysis)		50,000.00		50,000.00					
Special medical committees, Carnegie Corp		32.80							$32.80
Welch fellowships (the Rockefeller Foundation)		17,976.92		17,976.92					
Committee on growth (American Cancer Society)		99,432.03		99,432.03					
Fellowships in Anesthesia		4,908.93		[10] 4,908.93					
[10] American Society of Anesthesiologists	$2,500.00								
Anonymous Donor	2,408.93								
Total	4,908.93								
Streptomycin clinical testing program		292,820.74		[11] 292,759.18			$61.56		
[11] Abbott Laboratories, Inc	$34,737.74								
Eli Lilly & Co	21,699.74								
Merck & Co	54,785.00								
Parke, Davis & Co	34,737.74								
Chas. Pfizer & Co	21,699.74								
Schenley Laboratories, Inc	34,737.74								
E. R. Squibb & Co	21,699.74								
The Upjohn Co	51,699.74								
Wyeth, Inc	16,962.00								
Total	292,759.18								
Crash injury research		6,925.00		[12] 6,925.00					
[12] Aircraft Owners and Pilots Association	$1,000.00								
Aircraft Industries Association	5,925.00								
Total	6,925.00								

American Registry of Pathology		26,057.95	$561.54	[13] 12,150.00			9,380.33	$154.83	3,802.25
[13] American Cancer Society	$5,000.00								
American Academy of Orthopedic Surgeons	1,500.00								
American Dental Association	1,250.00								
American Society of Clinical Pathologists	150.00								
American Academy of Ophthalmology and Otology	2,500.00								
American Urological Association	1,500.00								
American Academy of Dermatology and Syphilology	150.00								
American Association for Thoracic Surgery	100.00								
Total	12,150.00								
Committee on drug addiction		5,000.00		[14] 5,000.00					
[14] Parke, Davis & Co.	$2,500.00								
Sharp & Dohme	2,500.00								
Total	5,000.00								
Division of Biology and Agriculture:									
Committee on animal nutrition		508.93					508.93		
Food and Nutrition Board		22,607.13		[15] 22,500.00			107.13		
[15] The Research Corp.	$5,000								
The Nutrition Foundation, Inc.	5,000								
The Milbank Memorial Fund	12,500								
Total	22,500								
Agricultural Board		1,510.65		[16] 1,500.00			10.65		
[16] Pillsbury Mills, Inc.	$500								
Merck & Co.	1,000								
Total	1,500								
American Institute of Biological Sciences		75.00							75.00
Committee on control of deterioration		1,552.50					1,552.50		
Division of Anthropology and Psychology:									
National intelligence tests		285.22						285.22	
Child development abstracts		6,054.73		[17] 2,100.00			3,954.73		
[17] Parent's Magazine fund.									
Directory of Anthropologists		2,018.20		[18] 2,000.00			18.20		
[18] The Viking Fund, Inc.	$1,500								
American Anthropological Association	500								
Total	2,000								
Textbook in military psychology fund		499.88						499.88	

SCHEDULE C–2.—*Statement of income for the year ended June 30, 1947*—Continued

		Total	Investment income	Private grants	Government contracts	Dues	Sales of publications	Royalties	Other
Current restricted funds—Continued									
National Research Council—Continued									
Private grants and other projects (NRC)—Continued									
Executive Board:									
International critical tables		$4,577.50						$4,577.50	
Office of Scientific Personnel		16,450.00		[19] $16,450.00					
[19] American Mathematical Society	$2,000								
Carnegie Corp. of New York	500								
Social Science Research Council	650								
American Institute of Physics	4,000								
American Council on Education	650								
American Psychological Association	1,250								
American Chemical Society	4,000								
Geological Society of America	3,000								
American Council of Learned Societies	400								
Total	16,450								
Fellowships in the natural sciences (the Rockefeller Foundation)		46,496.13		46,496.13					
Chemical Biological Coordination Center (American Cancer Society)		20,000.00		20,000.00					
Patent policy survey (Research Corp.)		15,000.00		15,000.00					
Pacific Science Office		15,500.00		[20] 15,500.00					
[20] Coolidge Foundation	$5,000								
Viking Fund	2,000								
Edward T. Foley	2,500								
Edward Mallinckrodt, Jr	5,000								
Anonymous	1,000								
Total	15,500								
Chemical Abstract Union List		905.25							$905.25
Pacific science anthropological research (Viking Fund)		8,000.00		8,000.00					
Library book fund		1,639.73	$1,639.73						
American Geophysical Union (the Rockefeller Foundation)		12,000.00		12,000.00					
Industrial Research Laboratories		6,996.86					$6,996.86		
Predoctoral fellowships (the Rockefeller Foundation)		244,998.80		244,998.80					
Committee on neurobiology (the John and Mary R. Markle Foundation)		2,000.00		2,000.00					

Scientific and technical bibliography (United States International Book Association, Inc.)		1,996.58		1,996.58					
Naples Zoological Station		600.00		[11] 600.00					
[11] Marine Biological Laboratories	$100.00								
American Association of University Women	500.00								
Total	600.00								
Fellowships in Social and Natural Sciences (Carnegie Corp. of New York)		50,000.00		50,000.00					
National Bureau of Standards projects:									
Fire resistance of materials		5,275.00		[11] 5,275.00					
[11] Douglas Fir Plywood Association	$750.00								
A. C. Olsen	25.00								
The Patent & Licensing Corp.	500.00								
Ins—Cem Building Products, Corp.	3,500.00								
Gypsum Association	500.00								
Total	5,275.00								
Total private grants and other projects (NRC)		1,241,255.93	2,201.27	1,115,969.18		$8,856.41	30,129.06	7,622.71	76,477.30
Total current restricted funds (NRC)		3,048,889.46	2,201.27	1,115,969.18	$1,807,633.53	8,856.41	30,129.06	7,622.71	76,477.30
Total current restricted funds (NAS-NRC)		3,128,648.42	22,416.43	1,160,469.18	1,816,088.13	10,796.41	34,774.26	7,625.71	76,478.30
Grand total		3,454,612.10	185,448.19	1,160,469.18	1,972,273.72	12,736.41	38,492.73	7,859.63	77,332.24

SCHEDULE C–3.—*Statement of expenses for the year ended June 30, 1947*

	Total	Personal services		Expenses and supplies				Grants and fellowships	Subcontracts
		Salaries and wages	Fees and other	Travel	Publications	Other	New equipment		
Current general funds:									
National Academy of Sciences:									
Carnegie Endowment Fund, income (for details see schedule C–3a)	$66,729.88	$49,809.77				$13,861.73	$3,058.38		
Academy general fund (for details see schedule C–3a)	93,000.49	66,248.30	$6,945.80	$1,907.71	$187.50	17,711.18			
	159,730.37	116,058.07	6,945.80	1,907.71	187.50	31,572.91	3,058.38		
National Research Council: Council general fund (for details see schedule C–3a)	107,694.90	75,117.51	12,155.92	11,360.97	3,077.22	5,983.28			
Total current general funds	267,425.27	191,175.58	19,101.72	13,268.68	3,264.72	37,556.19	3,058.38		
Current restricted funds:									
National Academy of Sciences:									
Government projects: Academy emergency grant, Academy Government projects	329.00			322.99		6.01			
Editorial Board on Penicillin	2,904.98	2,400.00	33.12	210.24		261.62			
Subtotal	3,233.98	2,400.00	33.12	533.23		267.63			
Less: Overhead transferred to general funds	−61.99					−61.99			
Total Government projects (NAS)	3,171.99	2,400.00	33.12	533.23		205.64			
Private grants and other projects:									
Academy emergency grant	375.28	357.14		18.14					
Autumn meeting foreign visitors' fund	35,921.09	500.00	59.80	31,308.81		4,052.48			
Bache Fund, income	1,059.99					59.99		$1,000.00	
Billings Fund, income	24.12					24.12			
Building site fund	9.41					9.41			
Building and grounds repair fund	32,110.98	3,185.36	2,288.88			26,636.74			
John J. Carty Medal and award, income	2,855.42					355.42		2,500.00	
Comstock Fund, income	13.34					13.34			
Conference on bioelectric potentials	866.21		80.00	413.48		372.73			
Conference on wave mechanics of the electron	872.84			124.64		748.20			
Draper Fund, income	1,234.41					9.41		1,225.00	

Elliot Fund, income	435.04					335.04		100.00	
Gibbs Fund, income	4.91					4.91			
Gould Fund, income	826.11					26.11		800.00	
Hartley Fund, income	1.23					1.23			
Joseph Henry Fund, income	648.94					48.94		600.00	
Joint Proceedings	5,826.24	750.00	292.00		4,543.40	240.84			
Marsh Fund, income	1,068.82					18.82		1,050.00	
Memorial Hospital survey	4,232.91		2,241.60	1,546.68		444.63			
Murray Fund, income	676.25					376.25		300.00	
National Science Fund	13,077.66	5,430.22		233.31		414.13		7,000.00	
Retirement fund, income	3,158.40	3,050.00				108.40			
Smith Fund, income	520.70					520.70			
Thompson Fund, income	1,124.25					874.25		250.00	
Walcott Fund, income	4.50					4.50			
Watson Fund, income	375.45					25.45		350.00	
Total private grants and other projects (NAS)	107,324.50	13,272.72	4,962.28	33,645.06	4,543.40	35,726.04		15,175.00	
Total current restricted funds (NAS)	110,496.49	15,672.72	4,995.40	34,178.29	4,543.40	35,931.68		15,175.00	
National Research Council:									
Government projects:									
Division of Physical Sciences: Nuclear Science (ONR Task V)	235.91			227.11		8.80			
Division of Engineering and Industrial Research:									
Highway Research Board	20,000.00	20,000.00							
Metallurgical advisory committee (OSRD)	711.78	50.05	583.69	5.40		72.64			
Quartermaster Corps problems	301,475.08	20,209.61	3,231.14	13,565.66		7,107.71	150.09		$257,210.87
Engineering information service	80.00		42.00			38.00			
Board for Prosthetic and Sensory Devices	1,604,778.51	106,999.63	2,422.06	51,142.12		78,537.45	871.53		1,364,805.72
Coast Guard problems	8,250.16					4.15			8,246.01
Ship-welding research	26,080.86	14,994.26	31.25	2,915.62		8,139.73			
Transportation Corps problems	17,102.99			11.10		504.04			16,587.85
Division of Medical Sciences:									
Committees on military medicine	10,086.92	615.78	4,156.00	1,712.31		3,602.83			
Committee on civil aviation medicine	3,888.80			152.61		148.54	31.82		3,555.83
Insect-control committee	6,308.15	3,229.05		773.15		2,305.95			
Veterans' medical problems	30,860.11	21,786.61	164.00	2,229.09		5,581.06	1,099.35		
Medical advisory committees	58,516.32	27,192.34	112.25	24,652.82		6,530.17	28.74		
Committee on aviation medicine	13,026.51	6,124.25		5,016.20		1,886.06			
Crash injury research	13,500.00	10,821.58	75.00	815.62		1,787.80			

SCHEDULE C-3.—*Statement of expenses for the year ended June 30, 1947*—Continued

	Total	Personal services		Expenses and supplies				Grants and fellowships	Subcontracts
		Salaries and wages	Fees and other	Travel	Publications	Other	New equipment		
Current restricted funds—Continued									
National Research Council—Continued									
Government projects—Continued									
Division of Biology and Agriculture:									
Committee on food composition	$10,610.01	$100.00		$95.10		$304.71			$10,110.20
Committee on control of deterioration	76,891.60	58,017.09		2,624.95		14,437.98	$1,811.58		
Food research survey	6,227.58	4,453.22		541.22		1,233.14			
Division of Anthropology and Psychology:									
Aircraft pilots, 1943	−1,581.84							−$1,581.84	
Aircraft pilots, 1944	991.36							991.36	
Aircraft pilots, 1945	33,171.38			361.58		96.57		32,713.23	
Aircraft pilots, 1946	32,641.58		$44.57	604.60		76.52		31,915.89	
Aircraft pilots, 1947	45,121.73	12,784.61	1,625.00	2,319.67		6,892.45		500.00	21,000.00
Committee on applied psychology and the war	975.75								975.75
Executive Board:									
Bibliographic Service to Central and South America	3,076.31	1,877.00	150.54			1,048.77			
Pacific Science Board, anthropological research	4,544.35	1,721.30		839.43		23.62			1,960.00
Key Roster of Scientific Personnel	15,442.72	10,786.04		990.56		3,573.12	93.00		
Scientific personnel survey	15,706.21	12,859.44		341.47		2,505.30			
Office of Scientific Personnel	9,259.48	7,613.99		1,504.34		141.15			
Chemical Biological Coordination Center	64,148.09	45,176.75	41.50	3,921.47		15,008.37			
Advisory committees, Navy	5,940.77			5,524.39		416.38			
Committee on undersea warfare	22,838.59	9,922.92	944.66	7,839.07		4,131.94			
Subtotal	2,460,907.77	397,335.52	13,623.66	130,726.66		166,144.95	4,086.11	64,538.64	1,684,452.23
Less: Overhead transferred to general funds	−97,090.83					−97,090.83			
Total Government projects (NRC)	2,363,816.94	397,335.52	13,623.66	130,726.66		69,054.12	4,086.11	64,538.64	1,684,452.23
Private grants and other projects (NRC):									
Division of Physical Sciences: Journal of Mathematical Tables	2,869.93		128.19	364.79	$2,132.68	244.27			

Division of Engineering and Industrial Research:									
Highway Research Board	85,818.37	48,133.90	10.45	12,005.54	9,894.91	13,222.00	2,551.57		
Nonrigid pavement project	8,763.33	937.50		18.75		7,635.58	171.50		
Commitee on fatigue in industry	37.59				37.59				
Calcium chloride stabilization	2,074.39	1,484.00		590.39					
Conference on electrical insulation	92.47					92.47			
Division of Geology and Geography:									
Ore deposits as related to structural features	615.45					615.45			
Division of Medical Sciences:									
Sex research fund	71,187.27	1,919.49		403.51		174.04		68,690.23	
Fellowships in medicine	25,180.77	719.49		1,742.27		336.34		22,382.67	
Committee on endocrinology	48,537.03	756.98		399.17		162.75		47,218.13	
Fellowships in virus studies and orthopedics	74,405.75	556.99		3,527.81		383.49		69,937.46	
Special medical committees, Carnegie Corp	990.13	107.07	511.50	184.96		186.60			
Welch fellowships	16,270.25	334.18		189.27		59.83		15,686.97	
War medical information	3,120.83	2,602.51				518.32			
Committee on growth	107,732.69	38,121.52	4,984.43	20,770.24		10,476.60	1,379.90	32,000.00	
Fellowships in anesthesia	6,315.87	222.85		177.69		32.00		5,883.33	
Streptomycin clinical testing program	433,616.44		17,209.08	174.67		415,678.73	553.96		
Crash injury research	6,166.85	5,000.00	36.50	377.68		401.62	351.05		
American registry of pathology	24,638.21	5,195.99	1,428.90	262.79	14,269.80	3,480.73			
Committee on drug addiction	853.06	644.77		14.20		194.09			
Division of Biology and Agriculture:									
Committee on animal nutrition	634.87				561.00	73.87			
Committee on nutritional aspects of aging	2,747.96		1,325.00	318.80		1,104.16			
Joint committee on forestry	286.41			111.51		174.90			
Agricultural Board	10,734.81	7,328.00		1,253.31	516.43	1,536.57	100.50		
American Institute of Biological Sciences	328.03		10.00	190.07		127.96			
Committee on control of deterioration	1,120.00					1,120.00			
Food and Nutrition Board	20,823.53	9,197.93		7,799.55	299.52	3,526.53			
Division of Anthopology and Psychology:									
Child development abstracts	7,057.71	4,305.40		1,828.87		923.44			
Textbook in Military Psychology Fund	45.67			45.67					

SCHEDULE C-3.—*Statement of expenses for the year ended June 30, 1947*—Continued

	Total	Personal services		Expenses and supplies				Grants and fellowships	Subcontracts
		Salaries and wages	Fees and other	Travel	Publications	Other	New equipment		
Current restricted funds—Continued									
National Research Council—Continued									
Private grants and other projects (NRC)—Continued									
Executive Board:									
Annual tables	$4, 859. 17	$4, 244. 50		$114. 67		$500. 00			
Subcommittee on individual hearing aids	956. 88		$6. 00	44. 87	$581. 00	325. 01			
Subcommittee on group hearing aids	130. 48			130. 48					
Ethnogeographic Board, joint fund	1, 242. 41	682. 14		31. 80		28. 47		$500. 00	
Central purposes fund	17, 898. 98	123. 00	256. 62	15, 304. 71		1, 414. 65		800. 00	
Office of Scientific Personnel	14, 247. 38	10, 815. 03	42. 00	1, 530. 89		1, 839. 86	$19. 60		
Scientific and technical bibliography	2, 403. 12				2, 403. 12				
Fellowships in the natural sciences	55, 865. 30	1, 387. 35		4, 570. 70		440. 93		49, 466. 32	
Library book fund	1, 301. 22					1, 301. 22			
American Geophysical Union	12, 000. 00							12, 000. 00	
Industrial Research Laboratories	6, 884. 99	390. 45			6, 437. 62	56. 92			
Predoctoral fellowships	245, 487. 98	1, 105. 70	43. 84	111. 18		745. 87		243, 481. 39	
Committee on neurobiology	587. 87		200. 00	290. 55		97. 32			
Naples Zoological Station	1, 442. 15					1, 442. 15			
Survey subcommittee, Latin-American anthropology	1, 346. 87	66. 50	687. 00			593. 37			
Chemical Biological Coordination Center	18, 281. 13	12, 186. 26		4, 479. 52		1, 615. 35			
Pacific Science Office	9, 313. 44	7, 187. 28		1, 575. 95		550. 21			
Patent policy survey	14, 236. 26	12, 018. 25	30. 00	1, 848. 93		339. 08			
Merck fellowships	1, 766. 01	735. 76		677. 94		352. 31			
Chemical Abstracts Union list	905. 25	905. 25							
Handbook of Scientific and Technical Societies	548. 06	320. 00				228. 06			
National Bureau of Standards projects:									
Acoustic properties of materials	367. 48			365. 48		2. 00			
Fire resistance of materials	325. 01	33. 36	16. 00	141. 35		134. 30			

Current meter investigations	114.45					114.45			
Thermal investigations	269.31			269.31					
Ignition research	98.43			98.43					
Investigations on stainless steel sheets	365.75					365.75			
Investigations of high strength reinforcement of concrete	224.28			224.28					
Total private grants and other projects (NRC)	1,376,535.33	179,769.40	26,925.51	84,562.55	37,133.67	474,969.62	5,128.08	568,046.50	
Total current restricted funds (NRC)	3,740,352.27	577,104.92	40,549.17	215,289.21	37,133.67	544,023.74	9,214.19	632,585.14	$1,684,452.23
Total current restricted funds (NAS and NRC)	3,850,848.76	802,777.64	45,544.57	249,467.50	41,677.07	579,955.42	9,214.19	647,760.14	1,684,452.23
Grand total	4,118,274.03	783,953.22	64,646.29	262,736.18	44,941.79	617,511.61	12,272.57	647,760.14	1,684,452.23

SCHEDULE C–3a.—*Expenditures from current general funds for the year ended June 30, 1947*

		Personal services	Expenses and supplies	Total
Carnegie endowment fund—income:				
Depreciation of equipment			$2, 500. 00	$2, 500. 00
Building and grounds:				
Office of the custodian		$3, 000. 00	3. 46	3, 003. 46
Operation and maintenance		46, 809. 77	11, 358. 27	58, 168. 04
Steam heating	$2, 581. 80			
Electricity	2, 344. 58			
Gas	9. 00			
Repairs and maintenance	1, 104. 51			
Insurance	1, 363. 52			
Other	3, 954. 86			
Total	11, 358. 27			
New equipment purchased			3, 058. 38	3, 058. 38
Total (exhibit C)		49, 809. 77	16, 920. 11	66, 729. 88
Academy general fund:				
Council of the Academy		1, 825. 00	1, 379. 86	3, 204. 86
Executive offices		9, 243. 35	2, 383. 24	11, 626. 59
Business office		41, 543. 63	2, 644. 05	44, 187. 68
Telephone service		5, 601. 95	119. 40	5, 721. 35
Receiving and duplicating department		9, 665. 87	1, 143. 30	10, 809. 17
Election of members			1, 821. 34	1, 821. 34
Meetings of the Academy		39. 50	1, 202. 62	1, 242. 12
Memoirs, editorial and biographical		106. 00	1, 200. 28	1, 306. 28
Financial Advisory Service		3, 668. 80		3, 668. 80
Pensions and retirement plan		1, 500. 00	4, 361. 89	5, 861. 89
Stores inventory (net purchases)			3, 142. 98	3, 142. 98
Telephone and telegraph, reimbursable (to be reimbursed by other funds)			407. 43	407. 43
Total (exhibit C)		73, 194. 10	19, 806. 39	93, 000. 49
Council general fund:				
Executive board			654. 82	654. 82
Chairman's office		17, 229. 62	3, 170. 83	20, 400. 45
Publications		1, 811. 95	4, 127. 44	5, 939. 39
Reference library		5, 542. 47	473. 97	6, 016. 44
Divisions:				
Foreign Relations			94. 56	94. 56
Physical Sciences		7, 972. 77	1, 161. 04	9, 133. 81
Engineering and Industrial Research		9, 942. 25	1, 104. 64	11, 046. 89
Chemistry and Chemical Technology		3, 236. 50	838. 44	4, 074. 94
Geology and Geography		5, 986. 16	1, 676. 62	7, 662. 78
Medical Sciences		18, 167. 52	973. 29	19, 140. 81
Biology and Agriculture		10, 806. 19	1, 826. 57	12, 632. 76
Anthropology and Psychology		6, 578. 00	4, 319. 25	10, 897. 25
Total (exhibit C)		87, 273. 43	20, 421. 47	107, 694. 90
Grand total		210, 277. 30	57, 147. 97	267, 425. 27

EXHIBIT D.—*Statement of investments for the year ended June 30, 1947*

	Balance June 30, 1946 (at cost)	Additions at cost	Sales and redemptions		Balance June 30, 1947 (at cost)	Market	Investment income
			Proceeds	Profit or loss			
Bonds and stocks:							
Bonds:							
U. S. Government	$737, 293. 75	$213, 015. 63	$66, 998. 44	$1, 998. 44	$885, 309. 38	$882, 771	$18, 745. 23
Railroad	440, 698. 78	162, 342. 88	179, 599. 60	−23, 591. 72	399, 850. 34	342, 808	18, 584. 90
Utility	205, 797. 65	52, 840. 00	184, 251. 01	7, 663. 36	82, 050. 00	82, 455	11, 325. 20
Industrial	95, 950. 00	40, 700. 00	102, 442. 27	−1, 617. 73	32, 590. 00	31, 875	3, 897. 72
Foreign government	10, 085. 75	....	10, 474. 78	389. 03	....	....	129. 73
Other	127, 992. 10	....	....	....	127, 992. 10	118, 860	4, 870. 80
Total bonds	1, 617, 818. 03	468, 898. 51	543, 766. 10	−15, 158. 62	1, 527, 791. 82	1, 458, 769	57, 553. 58
Preferred stocks	595, 423. 23	91, 275. 00	235, 481. 56	−2, 705. 21	448, 511. 46	411, 779	24, 690. 14
Common stocks:							
Industrial	1, 010, 979. 23	625, 398. 10	275, 397. 52	−240. 56	1, 360, 739. 25	1, 175, 546	59, 158. 09
Utility	368, 557. 75	51, 099. 60	127, 809. 44	−6, 412. 07	285, 435. 84	278, 064	15, 770. 26
Bank and insurance	302, 976. 16	99, 812. 50	34, 696. 74	−681. 16	367, 410. 76	321, 188	12, 666. 16
Railroad	117, 899. 95	....	6, 414. 24	687. 49	112, 173. 20	79, 975	5, 844. 75
Finance	199, 911. 13	4, 015. 83	39, 458. 55	932. 40	165, 400. 81	151, 625	8, 108. 11
Total common stocks	2, 000, 324. 22	780, 326. 03	483, 776. 49	−5, 713. 90	2, 291, 159. 86	2, 006, 388	101, 547. 37
Total bonds and stocks	4, 213, 565. 48	1, 340, 499. 54	1, 263, 024. 15	−23, 577. 73	4, 267, 463. 14	3, 876, 936	183, 791. 09
Mortgages and real estate:							
Mortgages	90, 841. 67	....	1, 711. 78	....	89, 129. 89	[1] 54, 500	1, 709. 21
Real estate	25, 000. 00	....	....	....	25, 000. 00	[1] 15, 000	−52. 11
Total mortgages and real estate	115, 841. 67	....	1, 711. 78	....	114, 129. 89	69, 500	1, 657. 10
Total investments	4, 329, 407. 15	1, 340, 499. 54	1, 264, 735. 93	−23, 577. 73	4, 381, 593. 03	3, 946, 436	185, 448. 19

[1] Estimated value.

REPORT OF THE AUDITING COMMITTEE

OCTOBER 27, 1947.

Dr. ALFRED N. RICHARDS,
President, National Academy of Sciences,
2101 Constitution Avenue NW., Washington 25, D. C.

DEAR DR. RICHARDS: In accordance with bylaw V-5 of the National Academy of Sciences, the auditing committee engaged the services of Arthur Andersen & Co., accountants and auditors, Washington, D. C., to make the annual audit of the accounts of the treasurer of the Academy (including the National Research Council).

The auditors have completed their examination and have submitted their certificate together with the financial statements as of June 30, 1947 (a copy of which is attached). The auditing committee has reviewed this report and recommends (1) its acceptance as compliance with the governing bylaw, and (2) that the auditors' certificate be published with the report of the treasurer.

Respectfully submitted.

JOHN B. REESIDE, Jr.,
ALEXANDER WETMORE,
JNO. A. FLEMING, *Chairman.*

ARTHUR ANDERSEN & CO.,
ACCOUNTANTS AND AUDITORS,
Washington, D. C., September 9, 1947.

To the Auditing Committee, National Academy of Sciences:

We have examined the balance sheet (exhibit A) of the National Academy of Sciences, including the National Research Council, as at June 30, 1947, and the statements of capital accounts, fund transactions, and investments (exhibits B, C, and D) for the year ended that date; have reviewed the system of internal control and the accounting procedures of the Academy; and, without making a detailed audit of the transactions, have examined or tested accounting records of the Academy and other supporting evidence, by methods and to the extent we deemed appropriate. Our examination was made in accordance with generally accepted auditing standards applicable in the circumstances and included all procedures which we considered necessary.

Our examination included but was not limited to the following: Cash in banks was reconciled with amounts confirmed directly to us by the depositories; petty cash and stamp funds were counted or confirmed directly by the custodians on a test basis and traveling advances were confirmed on a test basis directly by the holders; bonds, stocks, and mortgages reported by the treasurer as owned by the Academy were confirmed to us by the custodians, the Bank of New York and the Riggs National Bank of Washington; receipts from grants and contracts were checked to cash vouchers and original correspondence on a test basis and certain larger amounts were confirmed directly to us by the grantors; income from investments was tested by reference to financial publications and other data; representative vouchers covering disbursements for the account of the Academy and the authority therefor were examined and compared with the treasurer's record of expenditures; and a review was made to determine the adequacy of the accounting practices and controls of the Academy and the essential accuracy of its records.

Beginning with the fiscal year 1945, the current provision and accumulated reserve for depreciation of equipment were recorded in the accounts, but depreciation of the building has not been so recognized inasmuch as the Academy deems a provision for such depreciation as unnecessary since funds for replacement of the building will be obtained, when required, from contributions.

With a reservation as to depreciation of the building as discussed in the preceding paragraph, in our opinion, the accompanying balance sheet and related statements of capital accounts, fund transactions and investments present fairly the position of the National Academy of Sciences, including the National Research Council, at June 30, 1947 and the results of its current operations and the changes in capital accounts for the year ended that date and are in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ARTHUR ANDERSEN & CO.

APPENDIX A

NATIONAL ACADEMY OF SCIENCES

1. CONSTITUTION

[As amended and adopted Apr. 17, 1872, and further amended Apr. 20, 1875; Apr. 21, 1881; Apr. 19, 1882; Apr. 18, 1883; Apr. 19, 1888; Apr. 18, 1895; Apr. 20, 1899; Apr. 17, 1902; Apr. 18, 1906; Nov. 20, 1906; Apr. 17, 1907; Nov. 20, 1907; Apr. 20, 1911; Apr. 16, 1912; Apr. 21, 1915; Nov. 11, 1924; Nov. 9, 1925; Oct. 18, 1927; Nov. 18, 1929; Sept. 18, 1930; Apr. 24, 1933; Apr. 27, 1936; Apr. 28, 1937; Apr. 22, 1940; Oct. 26, 1942]

PREAMBLE

Empowered by the act of incorporation enacted by Congress, and approved by the President of the United States, on the 3d day of March A. D. 1863, and in conformity with amendments to said act approved July 14, 1870, June 20, 1884, and May 27, 1914, the National Academy of Sciences adopts the following amended constitution and bylaws.

ARTICLE I.—OF MEMBERS

SECTION 1. The Academy shall consist of members, members emeriti, and foreign associates. Members must be citizens of the United States.

SEC. 2. Members who, from age or inability to attend the meetings of the Academy, wish to resign the duties of active membership may, at their own request, be transferred to the roll of members emeriti by a vote of the Academy.

SEC. 3. The Academy may elect 50 foreign associates.

SEC. 4. Members emeriti and foreign associates shall have the privilege of attending the meetings and of reading and communicating papers to the Academy, but shall take no part in its business, shall not be subject to its assessments, and shall be entitled to a copy of the publications of the Academy.

ARTICLE II.—OF THE OFFICERS

SECTION 1. The officers of the Academy shall be a president, a vice president, a foreign secretary, a home secretary, and a treasurer, all of whom shall be elected for a term of 4 years, by a majority of votes present, at the annual meeting of the year in which the current terms expire. The date of expiration of the terms of office shall be June 30. In case of a vacancy the election shall be held in the same manner at the meeting when such vacancy occurs or at the next stated meeting thereafter, as the Academy may direct, and shall be for a term expiring on June 30 of the fourth year after that in which the election takes place. A vacancy in the office of treasurer or home secretary may, however, be filled by appointment of the president of the Academy until the next stated meeting of the Academy.

COUNCIL

SEC. 2. The officers of the Academy, together with six members to be elected by the Academy, and the chief executive officer of the National Research Council (provided he be a member of the Academy) shall constitute a Council for the transaction of such business as may be assigned to them by the constitution of the Academy.

EXECUTIVE COMMITTEE

SEC. 3. There shall be an executive committee of the Council of the Academy, composed of seven members, consisting of the president and vice president of the Academy, the chief executive officer of the National Research Council (provided he be a member of the Academy), the home secretary of the Academy, the treasurer of the Academy, and additional members of the Council of the Academy appointed by the president.

Their terms as members of the executive committee shall be coterminous with the term of their other office.

Except those powers dealing with nominations to membership in the Academy, the executive committee between the meetings of the Council shall have all the powers of the Council of the Academy, unless otherwise ordered by the Council.

The members of the executive committee of the Academy shall by virtue of their office be members of the executive board of the National Research Council and shall represent the Academy at all its meetings.

The president and home secretary of the Academy shall, respectively, be chairman and secretary of the executive committee.

In the absence of the president and the vice president or home secretary, the executive committee may select from among its members a chairman or a secretary pro tem.

The executive committee shall keep regular minutes and shall report all of its proceedings to the Council of the Academy for their information.

Unless otherwise ordered by the Council of the Academy or the executive committee, the executive committee shall meet once in each calendar month, and a special meeting may be called at any time by authority of the chairman, on reasonable notice.

Four members of the executive committee shall constitute a quorum. Letter ballots shall not be valid unless ratified at a meeting.

CUSTODIAN OF BUILDINGS AND GROUNDS

SEC. 4. On recommendation of the president, the Council of the Academy shall appoint a custodian of buildings and grounds, who, except where otherwise provided in the constitution and bylaws, shall have custody of all buildings, grounds, furniture, and other physical property belonging to the National Academy of Sciences or the National Research Council, or entrusted to their care.

He shall be responsible for and shall manage and administer these under such generic rules as the Council of the Academy may make and shall approve all vouchers for pay rolls and disbursements that come under authorized budget items or are specifically authorized by the Council of the Academy for the maintenance and operation of the Academy's and the Research Council's physical property.

He shall hold office at the pleasure of the Council of the Academy and shall receive such salary as it may agree and shall give such bond for the faithful performance of his duties as it may require.

He shall prepare and present to the finance committee of the Academy the buildings and grounds division of the general budget.

ADVISORY COMMITTEE ON BUILDINGS AND GROUNDS

He shall be chairman of a joint advisory committee of five on buildings and grounds, of which two members shall be appointed by the president of the Academy from the Academy Council, and two from the executive board of the National Research Council, which committee shall decide, subject to the approval of the Council of the Academy, all questions of allocation of space and use of public rooms.

FINANCE COMMITTEE

SEC. 5. There shall be a finance committee, of which the treasurer shall be chairman, consisting of the president of the Academy (or in his absence the vice president), the treasurer, the chief executive officer of the National Research Council (provided he be a member of the Academy), and two or three other members of the Academy appointed by the president, one of whom shall be a member of the executive board of the National Research Council.

It shall be the duty of the finance committee to provide for the safe custody of all financial resources of the Academy and to determine all matters relating to the purchase and sale of its securities.

It shall be the further duty of the finance committee to prepare and present to the Council of the Academy for adoption the "general budget," made up of the three "divisional budgets," of the Academy proper, of the Research Council, and of buildings and grounds, which divisional budgets shall be presented to the finance committee, respectively, by the treasurer, the chief executive officer of the National Research Council, and the custodian of buildings and grounds.

The finance committee shall be empowered to employ competent investment counsel (hereinafter called the financial advisor) to advise with the committee upon the purchase and sale of all securities, mortgages, or other investments.

PRESIDENT

SEC. 6. The president of the Academy, or, in case of his absence or inability to act, the vice president, shall preside at the meetings of the Academy, of the Academy Council, and of the executive board of the National Research Council; shall name all committees except such as are otherwise especially provided for; shall refer investigations required by the Government of the United States to members or other persons especially conversant with the subjects, and report thereon to the Academy at its meeting next ensuing; and, with the Council, shall direct the general business of the Academy.

GOVERNMENT REQUESTS

The president shall be ex officio a member of all committees empowered to consider questions referred to the Academy by the Government of the United States.

SECRETARIES

SEC. 7. The foreign and home secretaries shall conduct the correspondence proper to their respective departments, advising with the president and Council in cases of doubt, and reporting their action to the Academy at one of the stated meetings in each year.

It shall be the duty of the home secretary to give notice to the members of the place and time of all meetings, of all nominations for membership, and of all proposed amendments to the constitution.

It shall be the duty of the home secretary to keep the minutes of each business and scientific session, and after approval to enter these upon the permanent records of the Academy.

TREASURER

SEC. 8. The treasurer shall attend to all receipts and disbursements of the Academy, giving such bond and furnishing such vouchers as the Council may require. He shall collect all dues, assessments, and subscriptions, and keep a set of books showing a full account of receipts and disbursements and the condition of all funds of the Academy. He shall be the custodian of the corporate seal of the Academy.

ADMINISTRATIVE COMMITTEE, NATIONAL RESEARCH COUNCIL

SEC. 9. The president, vice president, home secretary, and treasurer shall be members of the administrative committee of the National Research Council and shall represent the Academy at all its meetings.

ARTICLE III.—OF THE MEETINGS

ACADEMY

SECTION 1. The Academy shall hold one stated meeting, called the annual meeting, in April of each year in the city of Washington, and another stated meeting, called the autumn meeting, at a place to be determined by the Council. The Council shall also have power to fix the date of each meeting.

Special business meetings of the Academy may be called, by order of eight members of the Council, at such place and time as may be designated in the call.

Special scientific meetings of the Academy may be held at times and places to be designated by a majority of the Council.

SEC. 2. The names of the members present at each session of a meeting shall be recorded in the minutes, and 20 members shall constitute a quorum for the transaction of business.

SEC. 3. Scientific sessions of the Academy, unless otherwise ordered by a majority of the members present, shall be open to the public; sessions for the transaction of business shall be closed.

COUNCIL OF THE ACADEMY

SEC. 4. Stated meetings of the Council shall be held during the stated or special meetings of the Academy, and four members shall constitute a quorum for the transaction of business. Special meetings of the Council may be convened at the call of the president and two members of the Council or of four members of the Council.

DUES IN ARREARS

SEC. 5. No member whose dues are in arrears shall vote at any business meeting of the Academy.

ARTICLE IV.—OF ELECTIONS AND REGULATIONS

SECTION 1. All elections of officers and members shall be by ballot, and each election shall be held separately.

SEC. 2. The time for holding an election of officers shall be fixed by the Academy at least 1 day before the election is held.

COUNCIL OF THE ACADEMY

SEC. 3. The election of six members of the Council shall be as follows:

At the annual meeting in April 1907, six members of the Council to be elected, of whom two shall serve for 3 years, two for 2 years, and two for 1 year, their respective terms to be determined by lot. Each year thereafter the terms of two members shall expire and their successors, to serve for 3 years, shall be elected at the annual meeting in each year. The date of expiration of the terms shall be June 30.

SECTIONS

SEC. 4. The Academy shall be divided by the Council into sections representing the principal branches of scientific research. Each section shall elect its own chairman to serve for 3 years. The chairman shall be responsible to the Academy for the work of his section.

ADVISORY COMMITTEE ON MEMBERSHIP

To provide that the Academy shall be more adequately representative of the potential scientific effort of the country and better able to discharge its obligations to Government, the Council of the Academy, acting with the chairmen of the sections, shall be an advisory committee on membership which shall recommend numbers of new members to the various sections. The numbers thus recommended to a section are to be for 3 years in advance. The advisory committee on membership may organize temporary nominating groups either by subdividing a present section into two or more groups or by forming new intersectional or extrasectional groups to which numbers of new members may be assigned. Such temporary nominating groups may then nominate new members in accordance with the rules laid down for sections.

NOMINATIONS

Nominations to membership in the Academy shall be made in writing and approved by two-thirds of the members voting in a section on the branch of research in which the person nominated is eminent, or by a majority of the Council, or by a majority (however distributed) of the members voting in any two sections. The nomination shall be sent to the home secretary by the chairman of the section before January 1 of the year in which the election is to be held, and each nomination shall be accompanied by a list of the principal contributions of the nominee to science. This list shall be printed by the home secretary for distribution among the members of the Academy.

ELECTION PROCEDURE

SEC. 5. Election of members shall be held at the annual meeting in Washington in the following manner: There shall be two ballots—a preference ballot, which must be transmitted to the home secretary at least two weeks in advance of the annual meeting, and a final ballot, to be taken at the meeting.

PREFERENCE BALLOT

Preference ballot.—From the list of nominees submitted by the home secretary, each member shall select and inscribe on a ballot, to an extent not greater than one-half nor less than one-third the list, those names which he prefers, as these limits shall be interpreted by the home secretary in his discretion, and announced by him, no weight being attached to the order of the names, and ballots not complying with these requirements being discarded. A list of the nominees shall then be prepared, on which the names shall be entered in the order of the number of votes received by each. In case two or more nominees have the same number of votes on this preference list, the order in which they shall be placed on the list shall be determined by a majority vote of members present.

After the preference list has been made up in the manner stated, the president, acting for the Council, may request permission to advance one or more nominees to a higher place on grounds of the general interests of the Academy. If a majority of the members of the Academy present favor such an advance it shall be made. The chairman of any section having two or more nominees on the list may, when its first nominee is reached, request the permission of the Academy to interchange the positions (on the preference list) of the nominees of his section, without altering in any way the positions of nominees from other sections. If a majority of the members of the Academy present favor permitting a section to make such interchange of its own nominees, it shall be done before proceeding further with the election.

FINAL BALLOT

A vote shall be taken on the nominee who appears first on the preference list, and he shall be declared elected if he receives two-thirds of the votes cast and not less than 30 votes in all. A vote shall then be taken in similar manner on the nominee standing second on the preference list, and so on until all the nominees on the preference list shall have been acted on, or until 30 nominees shall have been elected, or until the total membership of the Academy shall have reached 450, or until the Academy shall terminate the election by vote, as provided below. In voting the final ballot, members shall inscribe on the ballot the name of the nominee with either "*yes*" or "*no*" or "*blank*," and only ballots thus inscribed shall be counted. Members appointed as tellers must vote before counting the ballots.

If, however, a nominee receives a majority of the votes of those members voting in the preference ballot he may be declared elected by a two-thirds voice vote.

ELECTION

Not more than 30 members shall be elected at one annual meeting.

It shall be in order at any point in the course of an election to move that the election be closed. If two-thirds of those present vote in favor of such motion, it shall prevail, and the election shall thereupon terminate.

Before and during elections a discussion of the merits of nominees will be in order.

Sec. 6. Every member elected shall accept his membership, personally or in writing, before the close of the next stated meeting after the date of his election. Otherwise, on proof that the secretary has formally notified him of his election, his name shall not be entered on the roll of members.

FOREIGN ASSOCIATES

Sec. 7. Foreign associates may be nominated by the Council and may be elected at the annual meeting by a two-thirds vote of the members present.

CERTIFICATES OF ELECTION

Sec. 8. A diploma, with the corporate seal of the Academy and the signatures of the officers, shall be sent by the appropriate secretary to each member on his acceptance of membership and to foreign associates on their election.

RESIGNATIONS

Sec. 9. Resignations shall be addressed to the president and acted on by the Academy.

DUES, NONPAYMENT

Sec. 10. Whenever a member has not paid his dues for 4 successive years, the treasurer shall report the fact to the Council, which may report the case to the Academy with the recommendation that the person thus in arrears be declared to have forfeited his membership. If this recommendation be approved by two-thirds of the members present, the said person shall no longer be a member of the Academy, and his name shall be dropped from the roll.

Article V.—Of Scientific Communications, Publications, and Reports

SCIENTIFIC SESSIONS

Section 1. Communications on scientific subjects shall be read at scientific sessions of the Academy, and papers, by any member may be read by the author or by any other member, notice of the same having been previously given to the secretary.

Sec. 2. Any member of the Academy may read a paper from a person who is not a member and shall not be considered responsible for the facts or opinions expressed by the author, but shall be held responsible for the propriety of the paper.

Persons who are not members may read papers on invitation of the Council or of the committee on arrangements, or on recommendation by an Academy member and approval by the committee on arrangements.

PUBLICATIONS

SEC. 3. The Academy may provide for the publication, under the direction of the Council, of Proceedings, scientific Memoirs, Biographical Memoirs, and Reports.

PROCEEDINGS

The Proceedings shall be primarily a medium of first publication for original articles, in brief form, of permanent scientific value.

MEMOIRS

The scientific Memoirs shall provide opportunity for the publication of longer and more detailed scientific investigations.

The Biographical Memoirs shall contain an appropriate record of the life and work of the deceased members of the Academy.

ANNUAL REPORT

An annual report shall be presented to Congress by the president and shall contain the annual reports of the treasurer and the auditing committee, a suitable summary of the reports of the committees in charge of trust funds, and a record of the activities of the Academy for the fiscal year immediately preceding, and other appropriate matter. This report shall be presented to Congress by the president after authorization by the Council. It shall also be presented to the Academy at the annual meeting next following.

TREASURER'S REPORT

The treasurer shall prepare a full report of the financial affairs of the Academy at the end of the fiscal year. This report shall be submitted to the Council for approval and afterward presented to the Academy at the next stated meeting. He shall also prepare a supplementary financial statement to December 31 of the ensuing fiscal year for presentation at the annual meeting.

GOVERNMENT REQUESTS

SEC. 4. Propositions for investigations or reports by the Academy shall be submitted to the Council for approval, except those requested by the Government of the United States which shall be acted on by the president, who will in such cases report their results to the Government as soon as obtained.

ARTICLE VI.—OF TRUST FUNDS AND THEIR ADMINISTRATION

TRUSTS

SECTION 1. Devises, bequests, donations, or gifts having for their object the promotion of science or the welfare of the Academy may be accepted by the Council for the Academy. Before the acceptance of any such trust the Council shall consider the object of the trust and all conditions or specifications attaching thereto. The Council shall make a report of its action to the Academy.

MEDALS

SEC. 2. Medals and prizes may be established in accordance with the provisions of trusts or by action of the Academy.

TRUST FUND COMMITTEES

SEC. 3. Unless otherwise provided by the deed of gift, the income of each trust fund shall be applied to the objects of that trust by the action of the Academy on the recommendation of a standing committee on that fund.

ARTICLE VII.—OF ADDITIONS AND AMENDMENTS

Additions and amendments to the constitution shall be made only at a stated meeting of the Academy. Notice of a proposition for such a change must be submitted to the Council, which may amend the proposition and shall report thereon to the Academy. Its report shall be considered by the Academy in committee of the whole for amendment.

The proposition as amended, if adopted in committee of the whole, shall be voted on at the next stated meeting, and if it receives two-thirds of the votes cast it shall be declared adopted.

Absent members may send their votes on pending changes in the constitution to the home secretary in writing, and such votes shall be counted as if the members were present.

2. BYLAWS

[In accordance with a resolution of the Academy taken at its meeting on April 21, 1915, the bylaws are arranged in groups, and each group is numbered to correspond with the article of the constitution to which it relates]

I

1. The holders of the medal for eminence in the application of science to the public welfare shall be notified, like members, of the meetings of the Academy and invited to participate in its scientific sessions.

2. A foreign associate of the Academy who becomes a citizen of the United States shall have all the privileges and duties of a member of the Academy unless he shall request otherwise, and shall be included in the list of members in the section of his choice.

II

1. The proper secretary shall acknowledge all donations made to the Academy and shall at once report them to the Council for its consideration.

2. The home secretary shall keep a record of all grants of money or awards of prizes or medals made from trust funds of the Academy. The record for each grant of money shall include the following items: Name of fund, date and number of the grant, name and address of recipient, amount of grant, and date or dates of payment, purpose of grant, record of report of progress, and resulting publications.

3. The executive secretary, who may be a nonmember of the Academy, shall receive a salary to be fixed by the Council.

4. The treasurer shall keep the home secretary informed of all warrants received from directors of trust funds not controlled by the Academy and of the date or dates of payment of all warrants.

GOVERNMENT REQUESTS

5. The treasurer is authorized to defray, when approved by the president, all the proper expenses of committees appointed to make scientific investigations at the request of departments of the Government, and in each case to look to the department requesting the investigation for reimbursement to the Academy.

TREASURER, NATIONAL RESEARCH COUNCIL

6. The treasurer is authorized to act as the treasurer ex officio of the National Research Council.

BURSAR

7. The treasurer shall have the assistance of a salaried and bonded officer, the bursar, who shall be chosen by the finance committee and be directly responsible to the treasurer.

INVESTMENTS

8. All investments and reinvestments of either principal or accumulations of income of the trust and other funds of the Academy shall be made by the treasurer, in accordance with the decisions of the finance committee, in the corporate name of the Academy, in the manner and in the securities designated or specified in the instruments creating the several funds, or in the absence of such designation or specification, in bonds of the United States or of the several States, or in bonds or notes secured by first mortgages on real estate, in investments legal for savings banks under the laws of Massachusetts or New York, or in other securities recommended by the financial adviser.

The treasurer may invest the capital of all trust funds of the Academy which are not required by the instruments creating such funds to be kept separate and distinct in a consolidated fund, and shall apportion the income received from such consolidated fund among the various funds composing the same in the proportion that each of said funds shall bear to the total amount of funds so invested: *Provided, however,* That the treasurer shall at all times keep accurate accounts showing the amount of each trust fund, the proportion of the income from the consolidated fund to which it is entitled, and the expenses and disbursements properly chargeable to such fund.

The treasurer shall have authority, with the approval of the finance committee, to sell, transfer, convey, and deliver in the corporate name and for the benefit of the Academy any stocks, bonds, or other securities standing in the corporate name.

CUSTODIAN OF SECURITIES

9. On the recommendation of the finance committee, the Council shall contract with a bank, trust company, or corresponding fiduciary institution to serve as the custodian of securities, including all of the Academy's personal property in the form of bonds, mortgages, and other securities, to collect the income from them, to protect the Academy in respect to expirations, reissues, and notifications, and to buy or sell securities on the order of the treasurer, as approved by the finance committee.

CONTRACTS

10. No contract shall be binding upon the Academy which has not been first approved by the Council.

DUES

11. The assessments required for the support of the Academy shall be fixed by the Academy on the recommendation of the Council and shall be payable within the calendar year for which they are assessed.

FINANCE COMMITTEE MEETINGS

12. The finance committee may invite to be present at any of its meetings the chief executive officer of the Research Council, the custodian of buildings and grounds, and the bursar, but they shall not vote.

III

MEETINGS

1. At the business sessions of the Academy the order of procedure shall be as follows:

(1) Chair taken by the president, or, in his absence, by the vice president.
(2) Roll of members called by home secretary (first session of the meeting only).
(3) Minutes of the preceding session read and approved.
(4) Stated business.
(5) Reports of president, secretaries, treasurer, and committees.
(6) Business from Council.
(7) Other business.

RULES OF ORDER

2. The rules of order of the Academy shall be those of the Senate of the United States, unless otherwise provided by the constitution or bylaws of the Academy.

3. In the absence of any officer, a member shall be chosen to perform his duties temporarily, by a plurality of viva voce votes, upon open nomination.

DEATHS

4. At each meeting the president shall announce the death of any members since the preceding meeting. As soon as practicable thereafter he shall designate a member to write—or to secure from some other source approved by the president—a biographical notice of each deceased member.

COMMITTEE ON ARRANGEMENTS

5. For the annual meeting a committee of five members, appointed for each meeting, and the home secretary shall constitute the committee on arrangements, of which the home secretary shall be chairman. For the autumn meeting a member of the local group shall be chairman of the committee on arrangements, of which the home secretary shall be a member ex officio.

SCIENTIFIC PROGRAM

It shall be the duty of the committee on arrangements for a meeting of the Academy to prepare the scientific program for the annual meeting, and for this purpose it shall be empowered to solicit papers from members or others. It shall also be empowered to ascertain the length of time required for reading papers to be presented at the scientific sessions of the Academy and, when it appears advisable, to limit the time to be occupied in their presentation or discussion.[1]

The committee on arrangements shall meet not less than 2 months previous to each meeting. It shall prepare the detailed program of each day and in general shall have charge of all business and scientific arrangements for the meeting for which it is appointed.

PAPERS—TIME LIMIT

6. No paper requiring more than 15 minutes for its presentation shall be accepted unless by invitation of the committee on arrangements.

No speaker shall occupy more than 30 minutes for presentation of papers during the scientific sessions of a single meeting of the Academy, except by invitation of the committee on arrangements.

Time shall not be extended except by vote of the Academy, and then not to exceed 5 minutes. The presiding officer shall warn speakers 2 minutes before the expiration of their time.

The discussion of individual papers shall be limited not to exceed 5 minutes, and the total time for discussion by any one speaker for all scientific sessions in any one meeting shall not exceed 15 minutes, unless approved by the Academy.

In order that adequate opportunity be given for the discussion of papers on the program, the committee on arrangements shall, in making up the program for the scientific sessions, allot not more than 80 percent of the available time of each session to the actual reading of papers.

If the number of papers accepted is too large to be presented in the scientific sessions, provision shall be made for holding two or more sessions simultaneously.

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[1] As amended November 17, 1947.

In arranging the program the committee on arrangements shall group the papers as nearly as practicable according to subject.

To be entered upon the printed program of scientific sessions the title of a paper and an acceptable abstract must be in the hands of the committee on arrangements in time to be processed for the printing of the program and for its distribution to the members in advance of the meeting; such time to be determined by the committee.[1] In the event that titles are received later, they shall be placed in order of receipt at the end of the list and read, if there is time. Such supplementary titles shall be conspicuously posted.

IV

SECTIONS

1. The term of service of each chairman of a section shall be 3 years, to date from the closing session of the April meeting next following his election. Chairmen of sections shall be chosen by mail ballot, the member receiving the highest number of votes cast to be deemed elected. It shall be the duty of each retiring chairman to conduct the election of his successor, and to report the results of the election to the home secretary before the April meeting at which his term of service expires. Should any section fail to elect a chairman before November 1, the president is empowered to appoint a temporary chairman to serve until the April meeting next following. No chairman shall be eligible for reelection for two consecutive terms.

PROPOSALS FOR NOMINATION

2. (1) Intersectional: Proposals for nomination to membership may be made in writing by any five members of the Academy and addressed to the home secretary; each such proposal shall be accompanied by a record of the scientific activities of the person proposed and by a list of his principal contributions to science, in triplicate; and with a statement as to the sections to which the name proposed shall be submitted for consideration. Such proposals as have been received by the home secretary prior to October 1 shall upon that date be sent by him to the chairman of each section designated, with a copy of the record and list of contributions.

(2) Sectional: Proposals for nomination to membership shall be in writing and shall be sent to the chairman of the section not later than October 1. The proposal for nomination of any individual will be accepted for consideration by the section only if it is accompanied by a list of titles and references of the more important published scientific articles of the individual and by a factual summary, not over 250 words in length, of his accomplishments.

Each section chairman shall edit material thus received and, at the time of the informal ballot, distribute it, together with the material from the home secretary, relative to intersectional proposals, to the members of the section. The home secretary's office, if called upon, will assist the chairmen of the sections in the multigraphing of this material.

Each chairman shall keep a record of the names listed on the informal ballot and shall strike from the lists those names which were on the list in the previous year and received less than two votes on the informal ballot or had been on the list for 3 consecutive years without receiving in any one of these years on the informal ballot so many as one-fourth of the votes cast (counting the votes according to the number of members in the section who vote and not by the number of persons on the list for whom they vote). The home secretary shall keep a record of the votes on the informal ballots in the case of those persons proposed to two or more sections of the Academy and shall cause such names to be stricken from the lists of all sections if in 3 consecutive years there be no two sections in which the number of votes cast for the proposed nominee exceeds one-sixth of the votes cast in those sections except in case the number should be as many as one-fourth of the votes cast in one section, in which case the proposal should be considered thenceforth as a proposal in that section only. No proposal for nomination which is thus stricken from the list of the informal ballot shall be considered by the section (or sections) unless again proposed for nomination in the appropriate manner in a subsequent year.

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[1] As amended November 17, 1947.

NOMINATION BALLOTS

3. The chairman of each section of the Academy shall submit to the members of his section, not later than November 1 of each year, an informal ballot containing in alphabetical order and without indications of rank on ballots of the previous year, the names of all those persons who received not less than two votes in the informal ballot of the preceding year and not less than one-fourth of the votes on the informal ballot in at least one of the preceding 3 years in the case of names on the list for 3 years or have been continued on the list by the home secretary or have been added to the list by him or have been newly proposed for consideration in accordance with the procedure above defined. Each member of the section shall be expected to return his ballot to the chairman within 2 weeks, with his signature and with crosses against the names of those persons whom he is prepared to endorse for nomination. The vote resulting from this ballot shall be regarded as informal.

The chairman shall then submit to the members of his section a new ballot showing the results of the informal vote; and each member shall be expected to return this ballot to the chairman with his signature and with crosses placed against the names of those persons whom he judges to be worthy of nomination.

In order to secure an adequate number of nominations the chairman, when necessary, shall obtain by personal solicitation a fuller vote of his section or shall submit to the section a supplementary formal ballot.

The chairman shall then certify to the home secretary, prior to January 1, the names of all persons who have been voted for on the formal ballots, together with a statement of the number of votes each candidate received and of the number of members voting. Of these, all persons who receive the votes of two-thirds of the members voting in the section, in cases voted upon by one section only, or the votes of one-half (however distributed) of the members voting in any two sections, in cases voted upon by more than one section, shall be considered nominated.

A properly edited statement of the accomplishments of each individual nominated to the Academy by the sections shall be sent by the section chairmen to the home secretary along with the nominations of the section. These statements, together with summaries pertaining to those persons nominated intersectionally or nominated by the Council, shall be reproduced and distributed to the members of the Academy at the time of the preference ballot.

Persons nominated to the Academy and rejected by the Academy at the ensuing election may not be further considered by the sections until they have again been proposed for nomination in the appropriate manner in a subsequent year. Persons nominated but not voted upon by the Academy shall without further action be presented to the Academy upon the preference ballot of the next following year; but, if again not voted upon, the nominations shall lapse and not be considered except when renewed in the regular order.

ADVISORY COMMITTEE ON MEMBERSHIP

4. Meetings of the advisory committee on membership shall be held immediately following the election of new members of the Academy at the annual meeting. The president of the Academy shall be chairman of the advisory committee on membership.

TEMPORARY NOMINATING GROUPS

Members of the Academy who have been asked to serve on temporary nominating groups by the advisory committee on membership shall retain membership in their respective sections and shall be entitled to vote on the informal and formal ballots of their section.

When a temporary nominating group is organized by the advisory committee on membership, the member of the group who is designated as chairman by the advisory committee on membership shall immediately notify all members of the Academy in that group of their assignment by the advisory committee on membership as members of the group, listing all members of the group in this notification, and shall further transmit to all members of the group the specifications as prepared by the advisory committee on membership, of the special branch of science which the group is to canvass; and shall then obtain from the members of the group, before October 1, proposals of names of persons in that special branch of science, to be considered in the election of new members by the Academy. Such proposals shall be submitted to the group by the chairman not later than November 1 for informal ballot. The informal and formal ballots shall be governed by the same rules as ballots of sections; and the chairman shall report to the home secretary the results of the formal ballot of the group under the same rules as apply to sections.

PREFERENCE BALLOT

5. Preference ballots for the election of members shall be sealed in a blank envelope, which shall be enclosed in another bearing the name of the sender, and which shall be addressed to the home secretary, who shall cause the ballots to be tabulated for use at the election. If in any case it is impossible to determine who cast the ballot, or if the latter contain more or fewer than the number of names provided for in article IV, section 5, of the constitution, the ballot shall be rejected, but minor

defects in a ballot shall be disregarded when the intent of the voter is obvious.

6. All discussions of the claims and qualifications of nominees at meetings of the Academy shall be held strictly confidential, and remarks and criticisms then made may be communicated to no person who was not a member of the Academy at the time of the discussion.

7. Members of the Academy are permitted to choose the section with which they wish to be affiliated, and no one shall be a member of more than one section; but this does not preclude service on a temporary nominating group at the request of the advisory committee on membership.

V

PROCEEDINGS

1. The publication of the Proceedings shall be under the general charge of the Council, which shall have final jurisdiction upon all questions of policy relating thereto.

The National Academy of Sciences and the National Research Council shall cooperate in the publication of the Proceedings, beginning with volume VII.

MEMOIRS

2. Memoirs may be presented at any time to the home secretary, who shall report the date of their reception at the next session; but no Memoir shall be published unless it has been read or presented by title before the Academy.

Before publication all Biographical and scientific Memoirs must be referred to the committee on publication, who may, if they deem best, refer any Memoir to a special committee, appointed by the president, to determine whether the same should be published by the Academy.

3. Memoirs shall date in the records of the Academy from the date of their presentation to the Academy, and the order of their presentation shall be so arranged by the secretary that, so far as may be convenient, those upon kindred topics shall follow one another.

TREASURER'S REPORT

4. The annual report of the treasurer shall contain—

(1) A concise statement of the source, object, and amount of all trust funds of the Academy.

(2) A condensed statement of receipts and expenditures.

(3) A statement of assets and liabilities.

(4) Accounts with individual funds.

(5) Such other matter as he considers appropriate.

AUDITING COMMITTEE

5. The accounts of the treasurer shall, between July 1 and October 1 of each year, be audited by public accountants employed by an auditing committee of three members appointed by the president at the annual meeting of the Academy. The public accountants shall report to the committee, who shall in turn present the report of audit to the Academy at the autumn meeting, together with such comments and recommendations as the committee may deem appropriate. The

committee may cause to be made any other examinations of the financial records, the accounting records, and the system of internal control of the Academy which, in its judgment, are necessary for the determination of the adequacy and accuracy of the treasurer's accounts. The report of the treasurer shall be presented to the Academy at the autumn meeting and shall be published with that of the president to Congress and distributed to the members of the Academy in printed form.

VI

PROPERTY

1. All apparatus and other materials of permanent value purchased with money from any grant from a trust fund shall be the property of the Academy unless specific exception is made in the grant or by subsequent action of the Council. Receipts for all such property shall be signed by the grantee and shall be forwarded to the home secretary, who shall file them with the custodian of buildings and grounds. All apparatus and unused material of value acquired in this way shall be delivered to the custodian of buildings and grounds on completion of the investigation for which the grant was made, or at any time on demand of the Council, and the custodian of buildings and grounds shall give an appropriate release therefor.

2. A stamp corresponding to the corporate seal of the Academy shall be kept by the secretaries, who shall be responsible for the due markings of all books and other objects to which it is applicable.

Labels or other proper marks of similar device shall be placed upon objects not admitting of the stamp.

3. The fiscal year of the Academy shall end on June 30 of each year.

STANDING COMMITTEES—RESEARCH FUNDS

4. Standing committees of the Academy on trust funds, the income of which is applied to the promotion of research, shall consist of three or five members. In order to secure rotation in office in such committees, when not in conflict with the provisions of the deeds of gift, the term of service on a committee of three members shall be 3 years; on a committee of five members the term shall be 5 years.

5. The annual reports of the committees on research funds shall, so far as the Academy has authority to determine their form, give a current number to each award, stating the name, position, and address of the recipient; the subject of research for which the award is made and the sum awarded; and in later annual reports the status of the work accomplished under each award previously made shall be announced, until the research is completed, when announcement of its completion, and, if published, the title and place of publication shall be stated, and the record of the award shall be reported as closed.

VII

AMENDMENTS

1. Any bylaw of the Academy may be amended, suspended, or repealed on the written motion of any two members, signed by them, and presented at a stated meeting of the Academy, provided the same shall be approved by a majority of the members present.

3. ORGANIZATION OF THE ACADEMY

JULY 1, 1947

	Expiration of terms
Richards, Alfred N., president	June 30, 1951
Eisenhart, L. P., vice president	June 30, 1949
Bronk, Detlev W., foreign secretary	June 30, 1950
Wright, F. E., home secretary	June 30, 1951
Hunsaker, J. C., treasurer	June 30, 1948

Zwemer, Raymund L., executive secretary [1]

Meid, G. D., bursar and business manager [1]

ADDITIONAL MEMBERS OF THE COUNCIL [2]

1945–48:	1946–49:	1947–50:
Stanley, W. M.	Miles, W. R.	Noyes, W. Albert, Jr.
Tate, John T.	Rabi, I. I.	Van Slyke, Donald D.

EXECUTIVE COMMITTEE OF THE COUNCIL

Richards, A. N., chairman
Bronk, D. W.[2]
Eisenhart, L. P.
Hunsaker, J. C.
Miles, W. R.
Stanley, W. M.
Wright, F. E.

SECTIONS

1. Mathematics

von Neumann, John, chairman (1949)
Albert, A. A.
Alexander, J. W.
Bell, E. T.
Bliss, G. A.
Coble, A. B.
Douglas, Jesse
Eisenhart, L. P.
Evans, G. C.
Kasner, Edward
Lefschetz, Solomon
Miller, G. A.
Moore, R. L.
Morse, Marston
Murnaghan, F. D.
Ritt, J. F.
Smith, P. A.
Stone, M. H.
Thomas, T. Y.
Vandiver, H. S.
Veblen, Oswald
Walsh, J. L.
Weyl, Hermann
Whitney, Hassler
Zariski, Oscar

2. Astronomy

Mitchell, S. A., chairman (1950)
Abbot, C. G.
Adams, W. S.
Aitken, R. G.
Anderson, J. A.
Babcock, H. D.
Bowen, I. S.
Fleming, J. A.
Hubble, E. P.
Joy, A. H.
King, A. S.
Leuschner, A. O.
Merrill, P. W.
Moore, J. H.
Moulton, F. R.
Nicholson, S. B.
Ross, F. E.
Russell, H. N.
Seares, F. H.
Shapley, Harlow
Slipher, V. M.
Stebbins, Joel
Struve, Otto
Trumpler, R. J.
Wright, W. H.

3. Physics

Kemble, E. C., chairman (1948)
Allison, S. K.
Alvarez, L. W.
Anderson, C. D.
Bacher, R. F.
Bainbridge, K. T.
Beams, J. W.
Bethe, H. A.
Birge, R. T.
Bjerknes, Jacob
Breit, Gregory
Bridgman, P. W.
Coblentz, W. W.
Compton, A. H.
Compton, K. T.
Condon, E. U.
Coolidge, W. D.
Crew, Henry
Davis, Bergen
Davisson, C. J.
Dempster, A. J.
DuBridge, L. A.
Einstein, Albert
Epstein, P. S.
Fermi, Enrico
Franck, James

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[1] Not a member of the Academy or of the Council of the Academy.

[2] The constitution of the Academy provides that the chief executive officer of the National Research Council (D. W. Bronk) be a member of the Council of the Academy and also a member of the executive committee of the Council of the Academy, provided he be a member of the Academy.

3. *Physics*—Continued

Goudsmit, S. A.
Houston, W. V.
Hull, A. W.
Ives, H. E.
Lauritsen, C. C.
Lawrence, E. O.
Lyman, Theodore
McMillan, E. M.
Mason, Max
Merritt, Ernest
Millikan, R. A.
Mulliken, R. S.
Oppenheimer, J. R.
Pierce, G. W.
Piggot, C. S.
Rabi, I. I.
Reichelderfer, F. W.
Rossby, C. G.
Saunders, F. A.
Slater, J. C.
Slichter, L. B.
Stern, Otto
Stewart, G. W.
Sverdrup, H. U.
Tate, J. T.
Tuve, M. A.
Van Vleck, J. H.
Webster, D. L.
Wigner, E. P.
Wilson, Edwin B.
Wood, R. W.

4. *Engineering*

Dryden, H. L., chairman (1950)
Adams, C. A.
Briggs, L. J.
Buckley, O. E.
Bush, Vannevar
Cochrane, E. L.
Cottrell, F. G.
Curme, G. O., Jr.
Dunn, Gano
Durand, W. F.
Fletcher, Harvey
Foote, P. D.
Herty, C. H., Jr.
Hoover, Herbert
Hovgaard, William
Hunsaker, J. C.
Jeffries, Zay
Jewett, F. B.
Kelly, M. J.
Kettering, C. F.
Lewis, G. W.
Lewis, W. K.
Loomis, A. L.
Merica, P. D.
Slepian, Joseph
Soderberg, C. R.
Suits, C. G.
Terman, F. E.
Timoshenko, Stephen
von Karman, T.
Whitehead, J. B.
Wilson, R. E.
Wright, Orville
Zworykin, V. K.

5. *Chemistry*

Latimer, W. M., chairman (1950)
Adams, L. H.
Adams, Roger
Adkins, Homer
Bachmann, W. E.
Bancroft, W. D.
Bartlett, P. D.
Baxter, G. P.
Bogert, M. T.
Bolton, E. K.
Conant, J. B.
Cope, A. C.
Daniels, Farrington
Debye, Peter
Eyring, Henry
Fieser, L. F.
Fuson, R. C.
Giauque, W. F.
Gilman, Henry
Hammett, L. P.
Harkins, W. D.
Hildebrand, J. H.
Hudson, C. S.
Hulett, G. A.
Ipatieff, V. N.
Jacobs, W. A.
Johnson, T. B.
Keyes, F. G.
Kharasch, M. S.
Kirkwood, J. G.
Kistiakowsky, G. B.
Kraus, C. A.
La Mer, V. K.
Lamb, A. B.
Langmuir, Irving
Lind, S. C.
Longsworth, L. G.
MacInnes, D. A.
Marvel, C. S.
Mayer, J. E.
Noyes, W. A., Jr.
Onsager, Lars
Pauling, Linus
Rodebush, W. H.
Scatchard, George
Small, L. F.
Smith, L. I.
Tolman, R. C.
Urey, H. C.
Whitney, W. R.
Williams, Robert R.
Williams, Roger J.
Wilson, E. Bright, Jr.
Yost, D. M.

6. *Geology*

Hewett, D. F., chairman (1948)
Allen, E. T.
Berkey, C. P.
Blackwelder, Eliot
Bowen, N. L.
Bowman, Isaiah
Bradley, W. H.
Bucher, W. H.
Buddington, A. F.
Byerly, Perry
Chamberlin, R. T.
Chaney, R. W.
Cross, Whitman
Daly, R. A.
Day, A. L.
Dunbar, C. O.
Gilluly, James
Gregory, W. K.
Gutenberg, Beno
Kelley, W. P.
Knopf, Adolph
Larsen, E. S., Jr.
Lawson, A. C.
Leith, C. K.
Longwell, C. R.
Macelwane, J. B.
Mead, W. J.
Mendenhall, W. C.
Palache, Charles
Reeside, J. B., Jr.
Rubey, W. W.
Ruedemann, Rudolf
Simpson, G. G.
Vaughan, T. W.
Willis, Bailey
Woodring, W. P.
Wright, F. E.

7. Botany

Cleland, R. E., chairman (1950)
Allen, C. E.
Babcock, E. B.
Bailey, I. W.
Bailey, L. H.
Beadle, G. W.
Blakeslee, A. F.
Brink, R. A.
Campbell, D. H.
Chandler, W. H.
Couch, J. N.
Dodge, B. O.
Duggar, B. M.
Emerson, R. A.
Fernald, M. L.
Fred, E. B.
Hoagland, D. R.
Jones, D. F.
Kunkel, L. O.
McClintock, Barbara
Mangelsdorf, P. C.
Merrill, E. D.
Osterhout, W. J. V.
Rhoades, M. M.
Robbins, W. J.
Sax, Karl
Sinnott, E. W.
Stadler, L. J.
Stakman, E. C.
Thom, Charles
Van Niel, C. B.
Waksman, S. A.
Walker, J. C.
Went, F. W.

8. Zoology and Anatomy

Wright, Sewall, chairman (1949)
Bigelow, H. B.
Castle, W. E.
Child, C. M.
Conklin, E. G.
Corner, G. W.
Danforth, C. H.
Demerec, Milislav
Detwiler, S. R.
Dobzhansky, Theodosius
Dunn, L. C.
Goldschmidt, R. B.
Harrison, R. G.
Hartman, C. G.
Harvey, E. N.
Herrick, C. J.
Hisaw, F. L.
Jacobs, M. H.
Lewis, W. H.
Lillie, F. R.
Moore, Carl R.
Muller, H. J.
Painter, T. S.
Parker, G. H.
Patterson, J. T.
Riddle, Oscar
Romer, A. S.
Smith, P. E.
Sonneborn, T. M.
Streeter, G. L.
Sturtevant, A. H.
Taliaferro, W. H.
Weiss, Paul
Wetmore, Alexander
Willier, B. H.
Wislocki, G. B.

9. Physiology and Biochemistry

Van Slyke, D. D., chairman (1948)
Anderson, R. J.
Bard, Philip
Bronk, D. W.
Carlson, A. J.
Clark, W. M.
Clarke, H. T.
Cohn, E. J.
Cori, C. F.
Doisy, E. A.
DuBois, E. F.
du Vigneaud, Vincent
Elvehjem, C. A.
Erlanger, Joseph
Evans, H. M.
Fenn, W. O.
Forbes, Alexander
Gasser, H. S.
Hart, E. B.
Hastings, A. B.
Hecht, Selig
Link, K. P.
Loeb, R. F.
McCollum, E. V.
MacNider, W. deB.
Marshall, E. K., Jr.
Maynard, L. A.
Meek, W. J.
Michaelis, Leonor
Northrop, J. H.
Oncley, J. L.
Peters, J. P.
Richards, A. N.
Rose, W. C.
Shaffer, P. A.
Sherman, H. C.
Smith, Homer W.
Stadie, W. C.
Stanley, W. M.
Vickery, H. B.
Werkman, C. H.

10. Pathology and Bacteriology

Goodpasture, E. W., chairman (1948).
Addis, Thomas
Armstrong, Charles
Avery, O. T.
Blake, F. G.
Blalock, Alfred
Cannon, P. R.
Castle, W. B.
Cole, Rufus
Dochez, A. R.
Dubos, R. J.
Gamble, J. L.
Graham, E. A.
Heidelberger, Michael
Hektoen, Ludvig
Little, C. C.
Loeb, Leo
Long, E. R.
Longcope, W. T.
Meyer, K. F.
Minot, G. R.
Mueller, J. Howard
Murphy, J. B.
Novy, F. G.
Opie, E. L.
Paul, John R.
Rivers, T. M.
Robertson, O. H.
Rous, Peyton
Sabin, Florence R.
Shope, R. E.
Tyzzer, E. E.
Whipple, G. H.
Wolbach, S. B.

11. Anthropology and Psychology

Boring, E. G., chairman (1950)
Angell, J. R.
Carmichael, Leonard
Gesell, Arnold
Graham, C. H.
Hooton, E. A.
Hull, C. L.
Hunter, W. S.
Kidder, A. V.
Köhler, Wolfgang
Kroeber, A. L.
Lashley, K. S.
Linton, Ralph
Lowie, R. H.
Miles, W. R.
Pillsbury, W. B.
Schultz, A. H.
Seashore, C. E.
Spier, Leslie
Stevens, S. Smith
Stone, C. P.
Swanton, J. R.
Terman, L. M.
Thorndike, E. L.
Thurstone, L. L.
Tolman, E. C.
Tozzer, A. M.
Wever, E. G.
Wissler, Clark
Woodworth, R. S.
Yerkes, R. M.

TEMPORARY NOMINATING GROUPS

(Designated by the Advisory Committee on Membership for a 3-year period ending with the 1948 annual meeting)

ANTHROPOLOGY

A. V. Kidder, chairman

E. A. Hooton, A. L. Kroeber, Ralph Linton, R. H. Lowie, A. H. Schultz, Leslie Spier, J. R. Swanton, A. M. Tozzer, Clark Wissler.

GEOPHYSICS

John A. Fleming, chairman

Mathematics.—F. D. Murnaghan.

Astronomy.—C. G. Abbot, J. A. Fleming, Harlow Shapley.

Physics.—J. Bjerknes, P. W. Bridgman, A. H. Compton, Max Mason, C. S. Piggot, F. W. Reichelderfer, C. G. Rossby, L. B. Slichter, H. U. Sverdrup.

Engineering.—L. J. Briggs, J. C. Hunsaker, T. von Karman.

Chemistry.—L. H. Adams, S. C. Lind.

Geology.—Isaiah Bowman, Perry Byerly, Arthur L. Day, Beno Gutenberg, Adolph Knopf, J. B. Macelwane, T. Wayland Vaughan, F. E. Wright.

Botany.—S. A. Waksman.

Zoology and anatomy.—H. B. Bigelow.

PSYCHOLOGY

Edwin G. Boring, chairman

J. R. Angell, Leonard Carmichael, Arnold Gesell, C. H. Graham, C. L. Hull, W. S. Hunter, Wolfgang Köhler, K. S. Lashley, W. R. Miles, W. B. Pillsbury, C. E. Seashore, S. Smith Stevens, C. P. Stone, L. M. Terman, E. L. Thorndike, L. L. Thurstone, E. C. Tolman, E. G. Wever, R. S. Woodworth, R. M. Yerkes.

4. STANDING COMMITTEES OF THE ACADEMY

AUDITING COMMITTEE

John A. Fleming, chairman; John B. Reeside, Jr.; Alexander Wetmore.

BIOGRAPHICAL MEMOIRS

G. L. Streeter, chairman; E. G. Conklin; W. F. Durand; E. L. Thorndike; F. E. Wright.

BUILDINGS AND GROUNDS ADVISORY COMMITTEE (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

G. D. Meid, chairman; D. W. Bronk; F. M. Feiker; L. H. Weed; F. E. Wright.

EXHIBITS (JOINT COMMITTEE OF ACADEMY AND RESEARCH COUNCIL)

F. E. Wright, chairman; Raymund L. Zwemer, secretary; Harlow Shapley, member at large; the chairman of each of the sections of the Academy; the chairman of each of the divisions of the Research Council.

Executive committee on exhibits

F. E. Wright, chairman; D. W. Bronk; A. L. Day.

FINANCE COMMITTEE

The treasurer of the Academy, chairman ex officio (J. C. Hunsaker); the president of the Academy, ex officio (Alfred N. Richards); the chairman of the National Research Council, ex officio (D. W. Bronk); Vannevar Bush; L. P. Eisenhart; W. J. Robbins.

LIBRARY

C. S. Hudson, chairman; W. S. Adams; K. T. Compton; W. D. Harkins; G. H. Parker.

Subcommittee on the library

C. S. Hudson, chairman; W. W. Coblentz, vice chairman; G. L. Streeter; J. R. Swanton.

PROCEEDINGS, EDITORIAL BOARD (JOINT BOARD OF ACADEMY AND RESEARCH COUNCIL)

The home secretary and the foreign secretary of the Academy; the chairman of the National Research Council; A. Bevan; A. L. Day; C. A. Elvehjem; L. P. Eisenhart; F. M. Feiker; R. C. Gibbs; E. W. Goodpasture; A. I. Hallowell; F. B. Jewett; A. B. Lamb; E. O. Lawrence; W. R. Miles; W. J. V. Osterhout; F. H. Seares; L. H. Weed; Sewall Wright.

PENSION TRUST AGREEMENT

The president of the Academy, ex officio (A. N. Richards); the chairman of the Research Council, ex officio (D. W. Bronk); the home secretary of the Academy, ex officio (F. E. Wright); the treasurer of the Academy, ex officio (J. C. Hunsaker). Trustees: A. N. Richards, G. D. Meid.

PUBLICATIONS OF THE ACADEMY

The president of the Academy, ex officio (A. N. Richards); the home secretary of the Academy, ex officio (F. E. Wright); E. G. Conklin.

REVISION OF THE CONSTITUTION

Edwin B. Wilson, chairman; A. L. Day, Gano Dunn.

WEIGHTS, MEASURES, AND COINAGE

Gano Dunn, chairman; G. P. Baxter, R. W. Wood.

5. TRUST FUNDS OF THE ACADEMY

AGASSIZ FUND

[$50,000]

General uses of the Academy

ALEXANDER DALLAS BACHE FUND

[$60,000]

Researches in physical and natural science

Board of directors.—Edwin B. Wilson, chairman; W. J. V. Osterhout; Sewall Wright.

BARNARD MEDAL FOR MERITORIOUS SERVICE TO SCIENCE [3]

Discoveries in physical or astronomical science or novel application of science to purposes beneficial to the human race

Committee.—Edwin P. Hubble, chairman; Bergen Davis, A. L. Day; R. C. Tolman; W. R. Whitney.

BARNARD MEDAL AWARDS

Rayleigh, Lord, 1895
Röntgen, Wilhelm Conrad, 1900
Becquerel, Henri, 1905
Rutherford, Baron Ernest, 1909
Bragg, Sir William H., and Bragg, W. L., 1914
Einstein, Albert, 1921
Bohr, Niels, 1925
Heisenberg, Werner, 1930
Hubble, Edwin, 1935
Joliot, F., and Curie, Irene, 1940

BILLINGS FUND

[$25,258.39]

For partial support of the Proceedings or for such other purpose as the Academy may select

JOHN J. CARTY FUND

[$25,000]

Medal and monetary award, not oftener than once in every 2 years, to an individual for noteworthy and distinguished accomplishments in any field of science coming within the scope of the charter of the Academy

Committee.—Isaiah Bowman, chairman (1948); Vannevar Bush (1950); Harvey Fletcher (1951); Herbert Gasser (1952); J. B. Murphy (1949).

JOHN J. CARTY MEDAL AWARDS

Carty, John J., 1932
Wilson, Edmund Beecher, 1936
Bragg, Sir William, 1939
Conklin, Edwin Grant, 1943
Durand, William Frederick, 1945
Harrison, Ross Granville, 1947

CYRUS B. COMSTOCK FUND

[$15,000]

Prize awarded every 5 years for most important discovery or investigation in electricity, magnetism, and radiant energy, or to aid worthy investigations in those subjects

Committee.—Vannevar Bush, chairman (1949); J. W. Beams (1951); L. A. DuBridge (1950); A. L. Loomis (1948); I. I. Rabi (1952).

COMSTOCK PRIZE AWARDS

Millikan, Robert A., 1913
Barnett, Samuel J., 1918
Duane, William, 1923
Davisson, C. J., 1928
Bridgman, Percy W., 1933
Lawrence, Ernest O., 1938
Kerst, Donald W., 1943

HENRY DRAPER FUND

[$10,000]

Draper medal and investigations in astronomical physics

Committee.—Joel Stebbins, chairman (1948); Walter S. Adams (1950); I. S. Bowen (1952); John A. Fleming (1951); Otto Struve (1949).

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[3] Every 5 years the committee recommends the person whom they consider most deserving of the medal, and upon approval by the Academy the name of the nominee is forwarded to the trustees of Columbia University, who administer the Barnard Medal Fund.

HENRY DRAPER MEDAL AWARDS

Langley, Samuel P., 1886
Pickering, E. C., 1888
Rowland, H. A., 1890
Vogel, H. K., 1893
Keeler, J. E., 1899
Huggins, Sir William, 1901
Hale, George E., 1904
Campbell, W. W., 1906
Abbot, C. G., 1910
Deslandres, H., 1913
Stebbins, Joel, 1915
Michelson, A. A., 1916
Adams, W. S., 1918
Fabry, Charles, 1919
Fowler, Alfred, 1920
Zeeman, Pieter, 1921
Russell, Henry Norris, 1922
Eddington, Sir Arthur Stanley, 1924
Shapley, Harlow, 1926
Wright, William Hammond, 1928
Cannon, Annie Jump, 1931
Slipher, V. M., 1932
Plaskett, John Stanley, 1934
Mees, C. E. Kenneth, 1936
Wood, Robert Williams, 1940
Bowen, Ira Sprague, 1942
Merrill, Paul W., 1945

Daniel Giraud Elliot Fund

[$8,000]

Medal and honorarium for most meritorious work in zoology or paleontology published each year

Committee.—Alexander Wetmore, chairman; Albert E. Parr; Alfred S. Romer (1950); A. H. Sturtevant.

DANIEL GIRAUD ELLIOT MEDAL AWARDS

Chapman, F. M., 1917
Beebe, William, 1918
Ridgway, Robert, 1919
Abel, Othenio, 1920
Dean, Bashford, 1921
Wheeler, William Morton, 1922
Canu, Ferdinand, 1923
Breuil, Henri, 1924
Wilson, Edmund B., 1925
Stensiö, Erik A.: Son, 1927
Seton, Ernest Thompson, 1928
Osborn, Henry Fairfield, 1929
Coghill, George Ellett, 1930
Black, Davidson, 1931
Chapin, James P., 1932
Lull, Richard Swann, 1933
Painter, Theophilus Shickel, 1934
Colbert, Edwin H., 1935
Murphy, Robert Cushman, 1936
Parker, George Howard, 1937
Irwin, Malcolm Robert, 1938
Northrop, John Howard, 1939
Scott, William Berryman, 1940
Dobzhansky, Theodosius, 1941
Thompson, Sir D'Arcy Wentworth, 1942
Lashley, Karl Spencer, 1943
Simpson, George Gaylord, 1944

Wolcott Gibbs Fund

[$5,545.50]

Chemical research

Board of directors.—G. P. Baxter, chairman; Roger Adams; C. A. Kraus.

Benjamin Apthorp Gould Fund

[$20,000]

Researches in astronomy

Board of directors.—F. R. Moulton, chairman; Walter S. Adams; Joel Stebbins.

Marcellus Hartley Fund

[$1,200]

Medal for eminence in the application of science to the public welfare

Committee.—Edwin G. Conklin, chairman (1948); James B. Conant (1949); Selig Hecht (1950); Zay Jeffries (1949); H. J. Muller (1950); Harlow Shapley (1948).

PUBLIC WELFARE MEDAL AWARDS

(In memory of Marcellus Hartley)

Goethals, G. W., 1914
Gorgas, W. C., 1914
Abbe, Cleveland, 1916
Pinchot, Gifford, 1916
Stratton, S. W., 1917
Hoover, Herbert, 1920
Stiles, C. W., 1921
Chapin, Charles V., 1928
Mather, Stephen Tyng, 1930
Rose, Wickliffe, 1931
Park, William Hallock, 1932
Fairchild, David, 1933
Vollmer, August, 1934
Russell, F. F., 1935
Cumming, Hugh S., 1935
Whitney, Willis Rodney, 1937
Hoover, John Edgar, 1939
Rockefeller, John Davidson, Jr., 1943
Bush, Vannevar, 1945

JOSEPH HENRY FUND

[$47,163.50]

To assist meritorious investigators, especially in the direction of original research

Committee.—D. W. Bronk, chairman (1948); Raymond T. Birge (1949); George W. Corner (1952); Joel H. Hildebrand (1951); W. S. Hunter (1950).

MARSH FUND

[$20,000]

Original research in the natural sciences

Committee.—Edmund W. Sinnott, chairman (1950); A. F. Buddington (1951); W. J. Mead (1949); T. S. Painter (1948); William H. Taliaferro (1952).

MURRAY FUND

[$10,000]

Agassiz medal for original contributions in the science of oceanography

Committee.—T. Wayland Vaughan, chairman (1948); Charles S. Piggot (1950); H. U. Sverdrup (1949).

AGASSIZ MEDAL AWARDS

Hjort, Johan, 1913
Albert I, Prince of Monaco, 1918
Sigsbee, C. D., 1920
Pettersson, Otto Sven, 1924
Bjerknes, Vilhelm, 1926
Weber, Max, 1927
Ekman, Vagn Walfrid, 1928
Gardiner, J. Stanley, 1929
Schmidt, Johannes, 1930
Bigelow, Henry Bryant, 1931
Defant, Albert, 1932
Helland-Hansen, Björn, 1933
Gran, Haakon Hasberg, 1934
Vaughan, T. Wayland, 1935
Knudsen, Martin, 1936
Allen, Edgar Johnson, 1937
Sverdrup, Harald Ulrik, 1938
Lillie, Frank Rattray, 1939
Iselin, Columbus, II, 1942
Proudman, Joseph, 1946

GEORGE TRUE NEALLEY FUND

[$19,555.55]

For the general purposes of the Academy

J. LAWRENCE SMITH FUND

[$10,000]

J. Lawrence Smith medal and investigations of meteoric bodies

Committee.—C. R. Longwell, chairman (1948); L. H. Adams (1949); John A. Fleming (1952); V. M. Slipher (1950); R. J. Trumpler (1951).

J. LAWRENCE SMITH MEDAL AWARDS

Newton, H. A., 1888; Merrill, George P., 1922; Perry, Stuart Hoffman, 1945.

MARY CLARK THOMPSON FUND

[$10,000]

Medal for most important services to geology and paleontology

Committee.—W. C. Mendenhall, chairman (1948); A. F. Buddington (1950); C. O. Dunbar (1949).

MARY CLARK THOMPSON MEDAL AWARDS

Walcott, Charles Doolittle, 1921
Margerie, Emmanuel de, 1923
Clarke, John Mason, 1925
Smith, James Perrin, 1928
Scott, William Berryman, 1930
Ulrich, Edward Oscar, 1930
White, David, 1931
Bather, Francis Arthur, 1932
Schuchert, Charles, 1934
Grabau, Amadeus William, 1936
Watson, David Meredith Seares, 1941
Woodward, Sir Arthur Smith, 1942
Berry, Edward Wilber, 1942
Simpson, George Gaylord, 1943
Arkell, William Joscelyn, 1944
Vaughan, T. Wayland, 1945
Reeside, John Bernard, Jr., 1946

CHARLES DOOLITTLE WALCOTT FUND

[$5,000]

For stimulation of research in pre-Cambrian or Cambrian life by award of a medal and honorarium every 5 years

Board of trustees.—Carl O. Dunbar, temporary chairman; Alexander Wetmore (representing the Smithsonian Institution); Pierre Pruvost (representing the Institut de France); O. T. Jones (representing the Royal Society of London); W. H. Bucher.

CHARLES DOOLITTLE WALCOTT MEDAL AWARDS

White, David, 1934
Westergaard, A. H., 1939

JAMES CRAIG WATSON FUND

[$25,000]

Watson medal and the promotion of astronomical research

Trustees.—A. O. Leuschner, chairman; F. E. Ross, F. H. Seares.

JAMES CRAIG WATSON MEDAL AWARDS

Gould, B. A., 1887
Schoenfeld, Ed., 1889
Auwers, Arthur, 1891
Chandler, S. C., 1894
Gill, Sir David, 1899
Kapteyn, J. C., 1913
Leuschner, A. O., 1916
Charlier, C. V. L., 1924
de Sitter, Willem, 1929
Brown, Ernest William, 1936

CARNEGIE ENDOWMENT FUND

[$3,550,000]

For the purposes of the National Academy of Sciences and National Research Council

NATIONAL SCIENCE FUND

Board of directors

EX OFFICIO

The president of the Academy, Alfred N. Richards
The treasurer of the Academy, Jerome C. Hunsaker
The chairman of the Research Council, Detlev W. Bronk
The president of the American Association for the Advancement of Science, Harlow Shapley

NON-ACADEMY MEMBERS

Winthrop W. Aldrich
James F. Bell
John W. Davis
Homer L. Ferguson
Walter S. Gifford
Carlton J. H. Hayes
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Roger Adams
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Arthur H. Compton
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Luther P. Eisenhart
Herbert S. Gasser
Herbert Hoover
Ernest O. Lawrence
Frank R. Lillie
Robert A. Millikan
Alfred N. Richards
William J. Robbins
Harlow Shapley
George H. Whipple

Chairman of the board: Harlow Shapley; vice chairman, Winthrop W. Aldrich.

Executive secretary of the National Science Fund: Howland H. Sargeant.

Office of the National Science Fund: 2101 Constitution Avenue, Washington 25, D. C.

6. MEMBERS OF THE NATIONAL ACADEMY OF SCIENCES

JULY 1, 1947

	Elected
Abbot, Charles Greeley, 4604 Haring Lane, Bethesda, Md	1915
Adams, Comfort Avery, 417 West Price St., Philadelphia 44, Pa	1930
Adams, Leason Heberling, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton St. NW, Washington 8, D. C	1943
Adams, Roger, University of Illinois, Urbana, Ill	1929
Adams, Walter Sydney, Mount Wilson Observatory, Pasadena 4, Calif	1917
Addis, Thomas, Stanford University Medical School, 2398 Sacramento St., San Francisco 15, Calif	1944
Adkins, Homer, 369 Chemistry Bldg., University of Wisconsin, Madison 6, Wis	1942
Aitken, Robert Grant, 1109 Spruce St., Berkeley 7, Calif	1918
Albert, Abraham Adrian, Department of Mathematics, University of Chicago, Chicago 37, Ill	1943
Alexander, James Waddell, 29 Cleveland Lane, Princeton, N. J	1930
Allen, Charles Elmer, Room 103, Biology Bldg., University of Wisconsin, Madison 6, Wis	1924
Allen, Eugene Thomas, The Irvington, 135 Pleasant St., Arlington 74, Mass	1930
Allison, Samuel King, Institute for Nuclear Studies, University of Chicago, Chicago 37, Ill	1946
Alvarez, Luis Walter, Radiation Laboratory, University of California, Berkeley 4, Calif	1947
Anderson, Carl David, California Institute of Technology, Pasadena 4, Calif	1938
Anderson, John August, Post Office box 332, Pasadena 17, Calif	1928
Anderson, Rudolph John, department of chemistry, Yale University, New Haven, Conn	1946
Angell, James Rowland, 155 Blake Rd., New Haven 5, Conn	1920
Armstrong, Charles, National Institute of Health, Bethesda 14, Md	1944
Avery, Oswald Theodore, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1933
Babcock, Ernest Brown, Department of Genetics, University of California, Berkeley 4, Calif	1946
Babcock, Harold Delos, Mount Wilson Observatory, Pasadena 4, Calif	1933
Bacher, Robert Fox, U. S. Atomic Energy Commission, 1901 Constitution Ave., Washington 25, D. C	1947
Bachmann, Werner Emmanuel, University of Michigan, Ann Arbor, Mich	1941
Bailey, Irving Widmer, Biological Laboratories, Harvard University, Cambridge 38, Mass	1929
Bailey, Liberty Hyde, Bailey Hortorium, Ithaca, N. Y	1917
Bainbridge, Kenneth Tompkins, department of physics, Harvard University, Cambridge 38, Mass	1946

6. *Members of the National Academy of Sciences*—Continued

	Elected
Bancroft, Wilder Dwight, 7 East Ave., Ithaca, N. Y.	1920
Bard, Philip, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md.	1944
Bartlett, Paul Doughty, Harvard University, 12 Oxford St., Cambridge 38, Mass.	1947
Baxter, Gregory Paul, T. Jefferson Coolidge, Jr., Memorial Laboratory, Harvard University, Cambridge 38, Mass.	1916
Beadle, George Wells, department of biology, California Institute of Technology, Pasadena 4, Calif.	1944
Beams, Jesse Wakefield, Rouss Physical Laboratory, University of Virginia, Charlottesville, Va.	1943
Bell, Eric Temple, California Institute of Technology, Pasadena 4, Calif.	1927
Berkey, Charles Peter, department of geology, Columbia University, New York 27, N. Y.	1927
Bethe, Hans Albrecht, Cornell University, Ithaca, N. Y.	1944
Bigelow, Henry Bryant, Museum of Comparative Zoology, Harvard University, Cambridge 38, Mass.	1931
Birge, Raymond Thayer, University of California, Berkeley 4, Calif.	1932
Bjerknes, Jacob, department of meteorology, University of California, Los Angeles 24, Calif.	1947
Blackwelder, Eliot, Post Office Box N, Stanford University, Calif.	1936
Blake, Francis Gilman, Yale University School of Medicine, 333 Cedar St., New Haven 11, Conn.	1947
Blakeslee, Albert Francis, department of botany, Smith College, Northampton, Mass.	1929
Blalock, Alfred, Johns Hopkins Hospital, Baltimore 5, Md.	1945
Bliss, Gilbert Ames, Flossmoor, Ill.	1916
Bogert, Marston Taylor, 1158 5th Ave., Apt. 14B, New York 29, N. Y.	1916
Bolton, Elmer K., Department of Chemistry, E. I. du Pont de Nemours Co., Wilmington, Del.	1946
Boring, Edwin Garrigues, Memorial Hall, Harvard University, Cambridge 38, Mass.	1932
Bowen, Ira Sprague, Mount Wilson Observatory, Pasadena 4, Calif.	1936
Bowen, Norman Levi, Geophysical Laboratory, Carnegie Institution of Washington, 2801 Upton St., NW, Washington 8, D. C.	1935
Bowman, Isaiah, Johns Hopkins University, Baltimore 18, Md.	1930
Bradley, Wilmot Hyde, U. S. Geological Survey, Washington 25, D. C.	1946
Breit, Gregory, Sloane Physics Laboratory, Yale University, New Haven, Conn.	1939
Bridgman, Percy Williams, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass.	1918
Briggs, Lyman James, National Bureau of Standards, Washington 25, D. C.	1942
Brink, Royal Alexander, Department of Genetics, University of Wisconsin, Madison 6, Wis.	1947
Bronk, Detlev Wulf, Johnson Research Foundation, University of Pennsylvania, Philadelphia 4, Pa.	1939
Bucher, Walter Hermann, Department of Geology, Columbia University, New York 27, N. Y.	1938
Buckley, Oliver Ellsworth, Bell Telephone Laboratories, 463 West St., New York 14, N. Y.	1937
Buddington, Arthur Francis, Princeton University, Princeton, N. J.	1943
Bush, Vannevar, Carnegie Institution of Washington, Washington 5, D. C.	1934
Byerly, Perry, Department of Seismology, University of California, Berkeley 4, Calif.	1946
Campbell, Douglas Houghton, Stanford University, Stanford University, Calif.	1910
Cannon, Paul Robert, Department of Pathology, University of Chicago, Chicago 37, Ill.	1946
Carlson, Anton Julius, University of Chicago, Chicago 37, Ill.	1920
Carmichael, Leonard, Tufts College, Medford 55, Mass.	1943
Castle, William Bosworth, Boston City Hospital, Boston 18, Mass.	1939
Castle, William Ernest, 421 Spruce St., Berkeley 8, Calif.	1915

6. *Members of the National Academy of Sciences*—Continued

	Elected
Chamberlin, Rollin Thomas, University of Chicago, Chicago 37, Ill	1940
Chandler, William Henry, College of Agriculture, University of California, 405 Hilgard Ave., Los Angeles 24, Calif	1943
Chaney, Ralph Works, Department of Paleontology, University of California, Berkeley 4, Calif	1947
Child, Charles Manning, Jordan Hall, Stanford University, Stanford University, Calif	1935
Clark, William Mansfield, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1928
Clarke, Hans Thacher, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1942
Cleland, Ralph Erskine, Indiana University, Bloomington, Ind	1942
Coble, Arthur Byron, Haverford College, Haverford, Pa	1924
Coblentz, William Weber, 2737 Macomb St. NW., Washington 8, D. C	1930
Cochrane, Edward Lull, Material Division, Room 2008, Navy Department, Washington 25, D. C	1945
Cohn, Edwin Joseph, Harvard Medical School, Boston 15, Mass	1943
Cole, Rufus, Mount Kisco, N. Y	1922
Compton, Arthur Holly, Washington University, St. Louis 5, Mo	1927
Compton, Karl Taylor, 111 Memorial Dr., Cambridge 39, Mass	1924
Conant, James Bryant, Harvard University, Cambridge 38, Mass	1929
Condon, Edward Uhler, National Bureau of Standards, Washington 25, D. C	1944
Conklin, Edwin Grant, Princeton University, Princeton, N. J	1908
Coolidge, William David, 1480 Lenox Rd., Schenectady, N. Y	1925
Cope, Arthur Clay, Department of Chemistry, Massachusetts Institute of Technology, Cambridge 39, Mass	1947
Cori, Carl Ferdinand, School of Medicine, Washington University, St. Louis 10, Mo	1940
Corner, George Washington, Department of Embryology, Carnegie Institution of Washington, Wolfe and Madison Sts., Baltimore 5, Md	1940
Cottrell, Frederick Gardner, 1557 Waverley St., Palo Alto, Calif	1939
Couch, John Nathaniel, University of North Carolina, Chapel Hill, N. C	1943
Crew, Henry, 620 Library Pl., Evanston, Ill	1909
Cross, Charles Whitman, 3901 Connecticut Ave. NW., Washington 8, D. C	1908
Curme, George Oliver, Jr., Carbide & Carbon Chemical Corp., 30 East 42d St., New York 11, N. Y	1944
Daly, Reginald Aldworth, 23 Hawthorn St., Cambridge 38, Mass	1925
Danforth, Charles Haskell, Department of Anatomy, Stanford University, Stanford University, Calif	1942
Daniels, Farrington, Department of Chemistry, University of Wisconsin, Madison 6, Wis	1947
Davis, Bergen, 44 Morningside Dr., New York 25, N. Y	1929
Davisson, Clinton Joseph, 31 Campbell Rd., Short Hills, N. J	1929
Day, Arthur Louis, 9113 Old Georgetown Rd., Bethesda 14, Md	1911
Debye, Peter, Baker Laboratory, Cornell University, Ithaca, N. Y	[1] 1947
Demerec, Milislav, Department of Genetics, Carnegie Institution of Washington, Cold Spring Harbor, N. Y	1946
Dempster, Arthur Jeffrey, University of Chicago, Chicago 37, Ill	1937
Detwiler, Samuel Randall, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1932
Dobzhansky, Theodosius, Department of Zoology, Columbia University, New York 27, N. Y	1943
Dochez, Alphonse Raymond, Columbia University, Presbyterian Hospital, 620 West 168th St., New York 32, N. Y	1933
Dodge, Bernard Ogilvie, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1933
Doisy, Edward Adelbert, St. Louis University School of Medicine, 1402 South Grand Blvd., St. Louis 4, Mo	1938
Douglas, Jesse, 2610 Glenwood Rd., Brooklyn 10, N. Y	1946
Dryden, Hugh Latimer, National Bureau of Standards, Washington 25, D. C	1944

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[1] Elected a member of the Academy in 1947; elected a foreign associate in 1931.

6. *Members of the National Academy of Sciences*—Continued

	Elected
DuBois, Eugene Floyd, Cornell University Medical College, 1300 York Ave., New York 21, N. Y	1933
Dubos, René Jules, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1941
DuBridge, Lee Alvin, California Institute of Technology, Pasadena 4, Calif	1943
Duggar, Benjamin Minge, Lederle Laboratories, Inc., Pearl River, N. Y	1927
Dunbar, Carl Owen, Peabody Museum, Yale University, New Haven, Conn	1944
Dunn, Gano, 80 Broad St., New York 4, N. Y	1919
Dunn, Leslie Clarence, Columbia University, New York 27, N. Y	1943
Durand, William Frederick, Stanford University, Stanford University, Calif	1917
du Vigneaud, Vincent, Cornell University Medical College, New York 21, N. Y	1944
Einstein, Albert, The Institute for Advanced Study, Princeton, N. J	[1] 1942
Eisenhart, Luther Pfahler, 25 Alexander St., Princeton, N. J	1922
Elvehjem, Conrad Arnold, Department of Biochemistry, University of Wisconsin, Madison 6, Wis	1942
Emerson, Rollins Adams, Cornell University, Ithaca, N. Y	1927
Epstein, Paul Sophus, 1484 Oakdale St., Pasadena 4, Calif	1930
Erlanger, Joseph, Washington University School of Medicine, 4580 Scott Ave., St. Louis 10, Mo	1922
Evans, Griffith Conrad, Department of Mathematics, University of California, Berkeley 4, Calif	1933
Evans, Herbert McLean, Institute of Experimental Biology, University of California, Berkeley 4, Calif	1927
Eyring, Henry, Graduate School, University of Utah, Salt Lake City, Utah	1945
Fenn, Wallace Osgood, School of Medicine and Dentistry, University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1943
Fermi, Enrico, Institute for Nuclear Studies, University of Chicago, Chicago 37, Ill	1945
Fernald, Merritt Lyndon, Gray Herbarium, Harvard University, Cambridge 38, Mass	1935
Fieser, Louis Frederick, Harvard University, Cambridge 38, Mass	1940
Fleming, John Adam, Carnegie Institution of Washington, 1530 P St., NW., Washington 5, D. C	1938
Fletcher, Harvey, Bell Telephone Laboratories, Murray Hill, N. J	1935
Foote, Paul Darwin, Gulf Research & Development Co., P. O. Drawer 2038, Pittsburgh 30, Pa	1943
Forbes, Alexander, Harland St., Milton, Mass	1936
Franck, James, Department of Chemistry, University of Chicago, Chicago 37, Ill	1944
Fred, Edwin Broun, University of Wisconsin, Madison 6, Wis	1931
Fuson, Reynold Clayton, 263 Noyes Laboratory, University of Illinois, Urbana, Ill	1944
Gamble, James Lawder, 33 Edge Hill Rd., Brookline, Mass	1945
Gasser, Herbert Spencer, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Gesell, Arnold, Clinic of Child Development, Yale University School of Medicine, 14 Davenport Ave., New Haven, Conn	1947
Giauque, William Francis, University of California, Berkeley 4, Calif	1936
Gilluly, James, Department of Geology, University of California, Los Angeles 24, Calif	1947
Gilman, Henry, Department of Chemistry, Iowa State College, Ames, Iowa	1945
Goldschmidt, Richard Benedict, Department of Zoology, University of California, Berkeley 4, Calif	1947
Goodpasture, Ernest William, Vanderbilt University, Nashville 4, Tenn	1937
Goudsmit, Samuel Abraham, Department of Physics, Northwestern University, Evanston, Ill	1947

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[1] Elected a member of the Academy in 1942; elected a foreign associate in 1922.

6. *Members of the National Academy of Sciences*—Continued

	Elected
Graham, Clarence Henry, Department of Psychology, Columbia University, New York 27, N. Y	1946
Graham, Evarts Ambrose, Barnes Hospital, 600 South Kingshighway, St. Louis 10, Mo	1941
Gregory, William King, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1927
Gutenberg, Beno, Seismological Laboratory, 220 North San Rafael Ave., Pasadena 2, Calif	1945
Hammett, Louis Plack, Department of Chemistry, Columbia University, New York 27, N. Y	1943
Harkins, William Draper, University of Chicago, Chicago 37, Ill	1921
Harrison, Ross Granville, Osborn Zoological Laboratory, Yale University, New Haven, Conn	1913
Hart, Edwin Bret, Biochemistry Bldg., University of Wisconsin, Madison 6, Wis	1944
Hartman, Carl Gottfried, Department of Zoology, University of Illinois, Urbana, Ill	1937
Harvey, Edmund Newton, Guyot Hall, Princeton University, Princeton, N. J	1934
Hastings, Albert Baird, Department of Biological Chemistry, Harvard University Medical School, Boston 15, Mass	1939
Hecht, Selig, Columbia University, New York 27, N. Y	1944
Heidelberger, Michael, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1942
Hektoen, Ludvig, Chicago Tumor Institute, 21 West Elm St., Chicago 10, Ill	1918
Herrick, Charles Judson, 236 Morningside Dr. SE., Grand Rapids, Mich	1918
Herty, Charles Holmes, Jr., Bethlehem Steel Co., Inc., Bethlehem, Pa	1947
Hewett, Donnel Foster, U. S. Geological Survey, Washington 25, D. C	1937
Hildebrand, Joel Henry, Gilman Hall, University of California, Berkeley 4, Calif	1929
Hisaw, Frederick Lee, The Biological Laboratories, Harvard University, 16 Divinity Ave., Cambridge 38, Mass	1947
Hoagland, Dennis Robert, Division of Plant Nutritition, University of California, Berkeley 4, Calif	1934
Hooton, Earnest Albert, Peabody Museum, Harvard University, Cambridge 38, Mass	1935
Hoover, Herbert Clark, Waldorf Astoria Towers, New York, N. Y	1922
Houston, William Vermillion, The Rice Institute, Houston, Tex	1943
Hovgaard, William, Hotel Margaret, Columbia Heights, Brooklyn 2, N. Y	1929
Hubble, Edwin Powell, Mount Wilson Observatory, Pasadena 4, Calif	1927
Hudson, Claude Silbert, National Institute of Health, Bethesda 14, Md	1927
Hulett, George Augustus, 44 Washington Rd., Princeton, N. J	1922
Hull, Albert Wallace, Research Laboratory, General Electric Co., Schenectady 5, N. Y	1929
Hull, Clark Leonard, Institute of Human Relations, Yale University, 333 Cedar St., New Haven, Conn	1936
Hunsaker, Jerome Clark, Massachusetts Institute of Technology, Cambridge 39, Mass	1935
Hunter, Walter Samuel, Brown University, Providence 12, R. I	1935
Ipatieff, Vladimir Nikolaevich, Universal Oil Products Co., Riverside, Ill	1939
Ives, Herbert Eugene, 32 Laurel Pl., Upper Montclair, N. J	1933
Jacobs, Merkel Henry, School of Medicine, University of Pennsylvania, Philadelphia 4, Pa	1939
Jacobs, Walter Abraham, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1932
Jeffries, Zay, General Electric Co., 1 Plastics Ave., Pittsfield, Mass	1939
Jewett, Frank Baldwin, 140 West St., Room 2300, New York 7, N. Y	1918
Johnson, Treat Baldwin, "Bethwood," Amity Rd., Bethany R. F. D. 1, New Haven, Conn	1919
Jones, Donald Forsha, Box 1106, Department of Genetics, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1939
Joy, Alfred Harrison, Mount Wilson Observatory, Pasadena 4, Calif	1944
Kasner, Edward, Columbia University, New York 27, N. Y	1917

6. *Members of the National Academy of Sciences*—Continued

	Elected
Kelley, Walter Pearson, College of Agriculture, University of California, Berkeley 4, Calif	1943
Kelly, Mervin J., Bell Telephone Laboratories, 463 West St., New York 14, N. Y	1945
Kemble, Edwin Crawford, The Physics Laboratories, Harvard University, Cambridge 38, Mass	1931
Kettering, Charles Franklin, General Motors Corp., Detroit 2, Mich	1928
Keyes, Frederick George, Massachusetts Institute of Technology, Cambridge 39, Mass	1930
Kharasch, Morris Selig, Department of Chemistry, University of Chicago, Chicago 37, Ill	1946
Kidder, Alfred Vincent, 10 Frisbie Pl., Cambridge 38, Mass	1936
King, Arthur Scott, Mount Wilson Observatory, Pasadena 4, Calif	1941
Kirkwood, John Gamble, Baker Laboratory, Cornell University, Ithaca, N. Y	1942
Kistiakowsky, George Bogdan, Department of Chemistry, 12 Oxford St., Harvard University, Cambridge 38, Mass	1939
Knopf, Adolph, Yale University, New Haven, Conn	1931
Köhler, Wolfgang, Swarthmore College, Swarthmore, Pa	1947
Kraus, Charles August, Brown University, Providence 12, R. I	1925
Kroeber, Alfred L., University of California, Berkeley 4, Calif	1928
Kunkel, Louis Otto, Rockefeller Institute for Medical Research, Princeton, N. J	1932
Lamb, Arthur Becket, Chemical Laboratory, Harvard University, Cambridge 38, Mass	1924
La Mer, Victor Kuhn, Department of Chemistry, Columbia University, New York 27, N. Y	1945
Langmuir, Irving, General Electric Co., Schenectady 5, N. Y	1918
Larsen, Esper S., Jr., Geological Museum, Oxford St., Cambridge 38, Mass	1944
Lashley, Karl Spencer, Yerkes Laboratories of Primate Biology, Orange Park, Fla	1930
Latimer, Wendell Mitchell, University of California, Berkeley 4, Calif	1940
Lauritsen, Charles Christian, California Institute of Technology, Pasadena 4, Calif	1941
Lawrence, Ernest Orlando, Radiation Laboratory, University of California, Berkeley 4, Calif	1934
Lawson, Andrew Cowper, University of California, Berkeley 4, Calif	1924
Lefschetz, Solomon, Fine Hall, 129 Broadmead St., Princeton, N. J	1925
Leith, Charles Kenneth, University of Wisconsin, Madison 6, Wis	1920
Leuschner, Armin Otto, 1816 Scenic Ave., Berkeley 4, Calif	1913
Lewis, George W., 1724 F St. NW., Washington, D. C	1945
Lewis, Warren Harmon, The Wistar Institute of Anatomy and Biology, Philadelphia 4, Pa	1936
Lewis, Warren Kendall, Massachusetts Institute of Technology, Cambridge 39, Mass	1938
Lillie, Frank Rattray, 5801 Kenwood Ave., Chicago 37, Ill	1915
Lind, Samuel Colville, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1930
Link, Karl Paul, Department of Biochemistry, Agricultural Experiment Station, University of Wisconsin, Madison, Wis	1946
Linton, Ralph, Department of Anthropology, Columbia University, New York 27, N. Y	1945
Little, Clarence Cook, Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Maine	1945
Loeb, Leo, 40 Crestwood Dr., St. Louis 5, Mo	1937
Loeb, Robert Frederick, College of Physicians and Surgeons, 620 West 168th St., New York 32, N. Y	1946
Long, Esmond Ray, Henry Phipps Institute, 7th and Lombard Sts., Philadelphia, Pa	1946
Longcope, Warfield Theobald, Cornhill Farm, Lee, Mass	1943
Longsworth, Lewis Gibson, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1947
Longwell, Chester Ray, Kirtland Hall, Yale University, New Haven, Conn	1935
Loomis, Alfred Lee, the Loomis Laboratory, the Tower, Tuxedo Park, N. Y	1941

6. *Members of the National Academy of Sciences*—Continued

	Elected
Lowie, Robert Harry, University of California, Berkeley 4, Calif	1931
Lyman, Theodore, Research Laboratory of Physics, Harvard University, Cambridge 38, Mass	1917
McClintock, Barbara, Carnegie Institution, Cold Spring Harbor, Long Island, N. Y	1944
McCollum, Elmer Verner, Gilman Hall, Johns Hopkins University, Baltimore 18, Md	1920
McMillan, Edwin Mattison, Radiation Laboratory, University of California, Berkeley 4, Calif	1947
MacInnes, Duncan Arthur, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1937
MacNider, William de Berniere, University of North Carolina, Chapel Hill, N. C	1938
Macelwane, James Bernard, S. J., 221 North Grand Blvd., St. Louis 3, Mo	1944
Mangelsdorf, Paul Christoph, Botanical Museum, Harvard University, Cambridge 38, Mass	1945
Marshall, Eli Kennerly, Jr., School of Medicine, Johns Hopkins University, 710 North Washington St., Baltimore 5, Md	1943
Marvel, Carl Shipp, Department of Chemistry, University of Illinois, Urbana, Ill	1938
Mason, Max, California Institute of Technology, Pasadena 4, Calif	1923
Mayer, Joseph Edward, Department of Chemistry, University of Chicago, Chicago 37, Ill	1946
Maynard, Leonard Amby, School of Nutrition, Cornell University, Ithaca, N. Y	1944
Mead, Warren Judson, Massachusetts Institute of Technology, Cambridge 39, Mass	1939
Meek, Walter Joseph, Department of Physiology, University of Wisconsin, Madison 6, Wis	1947
Mendenhall, Walter Curran, 9 East Lenox St., Chevy Chase 15, Md	1932
Merica, Paul Dyer, 67 Wall St., New York 5, N. Y	1942
Merrill, Elmer Drew, Arnold Arboretum, Jamaica Plain, Mass	1923
Merrill, Paul Willard, Mount Wilson Observatory, Pasadena 4, Calif	1929
Merritt, Ernest George, 1 Grove Pl., Ithaca, N. Y	1914
Meyer, Karl Friederich, George Williams Hooper Foundation, University of California Medical Center, San Francisco 22, Calif	1940
Michaelis, Leonor, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1943
Miles, Walter Richard, Yale University School of Medicine, 333 Cedar St., New Haven 11, Conn	1933
Miller, George Abram, 1203 West Illinois St., Urbana, Ill	1921
Millikan, Robert Andrews, California Institute of Technology, Pasadena 4, Calif	1915
Minot, George Richards, Thorndike Memorial Laboratory, Boston City Hospital, Boston 18, Mass	1937
Mitchell, Samuel Alfred, Leander McCormick Observatory, University Station, Charlottesville, Va	1933
Moore, Carl Richard, University of Chicago, Chicago 37, Ill	1944
Moore, Joseph Haines, Lick Observatory, Mount Hamilton, Calif	1931
Moore, Robert Lee, University of Texas, Austin 12, Tex	1931
Morse, Harold Marston, Institute for Advanced Study, Princeton, N. J	1932
Moulton, Forest Ray, 1515 Massachusetts Ave. NW., Washington 5, D. C	1910
Mueller, John Howard, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1945
Muller, Hermann Joseph, Department of Zoology, Indiana University, Bloomington, Ind	1931
Mulliken, Robert Sanderson, University of Chicago, Chicago 37, Ill	1936
Murnaghan, Francis Dominic, Johns Hopkins University, Baltimore 18, Md	1942
Murphy, James Bumgardner, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1940
Nicholson, Seth Barnes, Mount Wilson Observatory, Pasadena 4, Calif	1937
Northrop, John Howard, Rockefeller Institute for Medical Research, Princeton, N. J	1934

6. *Members of the National Academy of Sciences*—Continued

	Elected
Novy, Frederick George, 721 Forest Ave., Ann Arbor, Mich	1924
Noyes, William Albert, Jr., Department of Chemistry, University of Rochester, Rochester 3, N. Y	1943
Oncley, John Lawrence, Department of Physical Chemistry, Harvard Medical School, Boston 15, Mass	1947
Onsager, Lars, Sterling Chemistry Laboratory, Yale University, 225 Prospect St., New Haven, Conn	1947
Opie, Eugene Lindsay, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1923
Oppenheimer, J. Robert, The Institute for Advanced Study, Princeton, N. J	1941
Osterhout, Winthrop John Vanleuven, Rockefeller Institute for Medical Research, 66th St and York Ave., New York 21, N. Y	1919
Painter, Theophilus Shickel, University of Texas, Austin 12, Tex	1938
Palache, Charles, Harvard University, Cambridge 38, Mass	1934
Parker, George Howard, Harvard Biological Laboratories, Divinity Ave., Cambridge 38, Mass	1913
Patterson, John Thomas, University of Texas, Austin 12, Tex	1941
Paul, John Rodman, 789 Howard Ave., New Haven 4, Conn	1945
Pauling, Linus, Crellin Laboratory, California Institute of Technology, Pasadena 4, Calif	1933
Peters, John Punnett, Department of Internal Medicine, Yale University School of Medicine, New Haven 11, Conn	1947
Pierce, George Washington, Cruft Laboratory, Harvard University, Cambridge 38, Mass	1920
Piggot, Charles Snowden, Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C	1946
Pillsbury, Walter Bowers, University of Michigan, Ann Arbor, Mich	1925
Rabi, Isidor Isaac, Department of Physics, Columbia University, New York 27, N. Y	1940
Reeside, John Bernard, Jr., Box 177, Hyattsville, Md	1945
Reichelderfer, Francis Wilton, Room 310, U. S. Weather Bureau, Washington, D. C	1945
Rhoades, Marcus Morton, Department of Botany, Columbia University, New York 27, N. Y	1946
Richards, Alfred Newton, 291 Medical Laboratories, University of Pennsylvania, Philadelphia 4, Pa	1927
Riddle, Oscar, Route 4, Plant City, Fla	1939
Ritt, Joseph Fels, Columbia University, New York 27, N. Y	1933
Rivers, Thomas Milton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1934
Robbins, William Jacob, New York Botanical Garden, Bronx Park (Fordham Station), New York 58, N. Y	1940
Robertson, Oswald Hope, Department of Medicine, University of Chicago, Chicago 37, Ill	1943
Rodebush, Worth Huff, University of Illinois, Urbana, Ill	1938
Romer, Alfred Sherwood, Museum of Comparative Zoology, Oxford St., Cambridge 38, Mass	1944
Rose, William Cumming, University of Illinois, Urbana, Ill	1936
Ross, Frank Elmore, Mount Wilson Observatory, Pasadena 4, Calif	1930
Rossby, Carl Gustaf Arvid, Institute of Meteorology, University of Chicago, Chicago 37, Ill	1943
Rous, Francis Peyton, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1927
Rubey, William Walden, U. S. Geological Survey, Washington 25, D. C	1945
Ruedemann, Rudolf, 161 Dana Ave., Albany 3, N. Y	1928
Russell, Henry Norris, Princeton University, Princeton, N. J	1918
Sabin, Florence Rena, 1333 East 10th Ave., Denver 3, Colo	1925
Saunders, Frederick Albert, South Hadley, Mass	1925
Sax, Karl, Harvard University, Cambridge 38, Mass	1941
Scatchard, George, Department of Chemistry, Massachusetts Institute of Technology, Cambridge 39, Mass	1946
Schultz, Adolph Hans, Johns Hopkins Medical School, Baltimore 5, Md	1939
Seares, Frederick Hanley, 351 Palmetto Dr., Pasadena 2, Calif	1919

6. *Members of the National Academy of Sciences*—Continued

	Elected
Seashore, Carl Emil, State University of Iowa, Iowa City, Iowa	1922
Shaffer, Philip Anderson, Washington University Medical School, St. Louis 10, Mo	1928
Shapley, Harlow, Harvard College Observatory, Cambridge 38, Mass	1924
Sherman, Henry Clapp, Columbia University, New York 27, N. Y	1933
Shope, Richard Edwin, Box 323, Kingston, N. J	1940
Simpson, George Gaylord, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y	1941
Sinnott, Edmund Ware, Osborn Botanical Laboratory, Yale University, New Haven, Conn	1936
Slater, John Clarke, Massachusetts Institute of Technology, Cambridge 39, Mass	1932
Slepian, Joseph, Westinghouse Electric Corp., East Pittsburgh, Pa	1941
Slichter, Louis Byrne, 636 Francis St., Madison, Wis	1944
Slipher, Vesto Melvin, Lowell Observatory, Flagstaff, Ariz	1921
Small, Lyndon Frederick, National Institute of Health, Bethesda 14, Md	1941
Smith, Homer William, 477 1st Ave., New York 16, N. Y	1945
Smith, Lee Irvin, School of Chemistry, University of Minnesota, Minneapolis 14, Minn	1944
Smith, Paul Althaus, Department of Mathematics, Columbia University, New York 27, N. Y	1947
Smith, Philip Edward, College of Physicians and Surgeons, 630 West 168th St., New York 32, N. Y	1939
Soderberg, Carl Richard, Massachusetts Institute of Technology, Cambridge 39, Mass	1947
Sonneborn, Tracy Morton, Department of Zoology, Indiana University, Bloomington, Ind	1946
Spier, Leslie, Post Office Box 880, Santa Cruz, Calif	1946
Stadie, William Christopher, 821 Maloney Clinic, 36th and Spruce Sts., Philadelpha 4, Pa	1945
Stadler, Lewis John, University of Missouri, Columbia, Mo	1938
Stakman, Elvin Charles, University Farm, St. Paul 8, Minn	1934
Stanley, Wendell Meredith, Rockefeller Institute for Medical Research, Princeton, N. J	1941
Stebbins, Joel, Washburn Observatory, Madison 6, Wis	1920
Stern, Otto, 759 Cragmont Ave., Berkeley, Calif	1945
Stevens, Stanley Smith, Department of Psychology, Harvard University, Cambridge 38, Mass	1946
Stewart, George Walter, State University of Iowa, Iowa City, Iowa	1938
Stone, Calvin Perry, Stanford University, Stanford University, Calif	1943
Stone, Marshall Harvey, 313 Eckhart Hall, University of Chicago, Chicago 37, Ill	1938
Streeter, George Linius, Johns Hopkins Medical School, 710 North Washington St., Baltimore 5, Md	1931
Struve, Otto, Yerkes Observatory, Williams Bay, Wis	1937
Sturtevant, Alfred Henry, California Institute of Technology, Pasadena 4, Calif	1930
Suits, Chauncey Guy, Research Laboratory, General Electric Co., Schenectady 5, N. Y	1946
Sverdrup, Harald Ulrik, Scripps Institution of Oceanography, La Jolla, Calif	1945
Swanton, John Reed, 22 George St., Newton 58, Mass	1932
Taliaferro, William Hay, University of Chicago, Chicago 37, Ill	1940
Tate, John Torrence, University of Minnesota, Minneapolis 14, Minn	1942
Terman, Frederick Emmons, School of Engineering, Stanford University, Stanford University, Calif	1946
Terman, Lewis Madison, 761 Dolores St., Stanford University, Calif	1928
Thom, Charles, 207 Grant St., Port Jefferson, N. Y	1937
Thomas, Tracy Yerkes, Swain Hall, Indiana University, Bloomington, Ind	1941
Thorndike, Edward Lee, Teachers College, Columbia University, New York 27, N. Y	1917
Thurstone, Louis Leon, University of Chicago, Chicago 37, Ill	1938
Timoshenko, Stephen Prokop, Room 262, Engineering Bldg., Stanford University, Calif	1940

6. *Members of the National Academy of Sciences*—Continued

	Elected
Tolman, Edward Chace, Department of Psychology, University of California, Berkeley 4, Calif	1937
Tolman, Richard Chace, California Institute of Technology, Pasadena 4, Calif	1923
Tozzer, Alfred Marston, Peabody Museum, Harvard University, Cambridge 38, Mass	1942
Trumpler, Robert Julius, Berkeley Astronomical Department, University of California, Berkeley 4, Calif	1932
Tuve, Merle Antony, Department of Terrestrial Magnetism, Carnegie Institution of Washington, 5241 Broad Branch Rd. NW., Washington 15, D. C	1946
Tyzzer, Ernest Edward, Harvard University Medical School, Boston 15, Mass	1942
Urey, Harold Clayton, Post Office Box 5207, Chicago 80, Ill	1935
Vandiver, Harry Shultz, Indiana University, Bloomington, Ind	1934
Van Niel, Cornelis Bernardus, Hopkins Marine Station of Stanford University, Pacific Grove, Calif	1945
Van Slyke, Donald Dexter, Rockefeller Institute for Medical Research, 66th St. and York Ave., New York 21, N. Y	1921
Van Vleck, John Hasbrouck, Harvard University, Cambridge 38, Mass	1935
Vaughan, Thomas Wayland, 3333 P St. NW., Washington 7, D. C	1921
Veblen, Oswald, The Institute for Advanced Study, Princeton, N. J	1919
Vickery, Hubert Bradford, Connecticut Agricultural Experiment Station, New Haven 4, Conn	1943
von Karman, Theodore, California Institute of Technology, Pasadena 4, Calif	1938
von Neumann, John, Institute for Advanced Study, Princeton, N. J	1937
Waksman, Selman Abraham, Agricultural Experiment Station, New Brunswick, N. J	1942
Walker, John Charles, 206 Horticulture Bldg., University of Wisconsin, Madison 6, Wis	1945
Walsh, Joseph Leonard, Harvard University, Cambridge 38, Mass	1936
Webster, David Locke, Physics Department, Room 385, Stanford University, Stanford University, Calif	1923
Weiss, Paul Alfred, Department of Zoology, University of Chicago, Chicago 37, Ill	1947
Went, Frits Warmolt, California Institute of Technology, Pasadena 4, Calif	1947
Werkman, Chester Hamlin, Department of Bacteriology, Iowa State College, Ames, Iowa	1946
Wetmore, Alexander, Smithsonian Institution, Washington 25, D. C	1945
Wever, Ernest Glen, Princeton University, Princeton, N. J	1940
Weyl, Claus Hugo Hermann, Institute for Advanced Study, Princeton, N. J	1940
Whipple, George Hoyt, School of Medicine, University of Rochester, 260 Crittenden Blvd., Rochester 7, N. Y	1929
Whitehead, John Boswell, Johns Hopkins University, Baltimore 18, Md	1932
Whitney, Hassler, Sudbury Rd., Weston 93, Mass	1945
Whitney, Willis Rodney, General Electric Co., Schenectady 5, N. Y	1917
Wigner, Eugene Paul, 8 Ober Rd., Princeton, N. J	1945
Williams, Robert R., 297 Summit Ave., Summit, N. J	1945
Williams, Roger John, Biochemical Institute, University of Texas, Austin, Tex	1946
Willier, Benjamin Harrison, Department of Biology, Johns Hopkins University, Baltimore 18, Md	1945
Willis, Bailey, Box 1365, Stanford University, Calif	1920
Wilson, Edgar Bright, Jr., Harvard University, Department of Chemistry, 12 Oxford St., Cambridge 38, Mass	1947
Wilson, Edwin Bidwell, Harvard School of Public Health, 695 Huntington Ave., Boston 15, Mass	1919
Wilson, Robert Erastus, 910 South Michigan Ave., Chicago 80, Ill	1947
Wislocki, George Bernays, Harvard Medical School, 25 Shattuck St., Boston 15, Mass	1941

6. Members of the National Academy of Sciences—Continued

	Elected
Wissler, Clark, American Museum of Natural History, 77th St. and Central Park West, New York 24, N. Y.	1929
Wolbach, Simeon Burt, Harvard University Medical School, 25 Shattuck St., Boston 15, Mass.	1938
Wood, Robert Williams, Johns Hopkins University, Baltimore 18, Md.	1912
Woodring, Wendell Phillips, United States Geological Survey, Washington 25, D. C.	1946
Woodworth, Robert Sessions, Columbia University, New York 27, N. Y.	1921
Wright, Frederick Eugene, 2134 Wyoming Ave. NW., Washington 8, D. C.	1923
Wright, Orville, 15 North Broadway, Dayton 7, Ohio	1936
Wright, Sewall Green, Department of Zoology, University of Chicago, Chicago 37, Ill.	1934
Wright, William Hammond, 60 North Keeble Ave., San Jose 11, Calif.	1922
Yerkes, Robert Mearns, Yale School of Medicine, 333 Cedar St., New Haven, Conn.	1923
Yost, Don Merlin Lee, California Institute of Technology, Pasadena 4, Calif.	1944
Zariski, Oscar, Department of Mathematics, University of Illinois, Urbana, Ill.	1944
Zworykin, Vladimir Kosma, RCA Laboratories, Princeton, N. J.	1943

Total members, July 1, 1947: **408.**

MEMBERS EMERITI

Benedict, Francis Gano, Machiasport, Maine	1914
Dewey, John, 1158 5th Ave., New York 29, N. Y.	1910
Dickson, Leonard Eugene, 905 South 3d St., Waco, Tex.	1913
Howard, Leland Ossian, Bureau of Entomology, U. S. Department of Agriculture, Washington 25, D. C.	1916
Hunt, Reid, 382 Commonwealth Ave., Boston, Mass.	1919
Stratton, George Malcolm, University of California, Berkeley 4, Calif.	1928

FOREIGN ASSOCIATES

Adrian, Edgar Douglas, Trinity College, Cambridge, England	1941
Alexandroff, Paul A., Mathematical Institute of the Academy of Sciences of the U. S. S. R., Bolshaya Kalushskaya 19, Moscow, U. S. S. R.	1947
Bailey, Sir Edward, 19 Greenhill Gardens, Edinburgh 10, Scotland	1944
Bartlett, Frederic Charles, University of Cambridge, the Psychological Laboratory, Downing Place, Cambridge, England	1947
Bjerknes, V. F. K., University, Oslo, Norway	1934
Bohr, Niels, University of Copenhagen, Copenhagen, Denmark	1925
Bordet, Jules, Pasteur Institute, Rue du Remorqueur, 28, Brussels, Belgium	1935
Bower, Frederick Orpen, The Old Deanery Hotel, Ripon, Yorks, England	1929
Bragg, Sir William Lawrence, The University, Cambridge, England	1945
Brönsted, Johannes Nicolaus, Institute for Physical Chemistry, University of Copenhagen, Copenhagen, Denmark	1947
Caso, Alfonso, Secretaria de Bienes Nacionales e Inspeccion Administrativa, Mexico, D. F.	1943
Chapman, Sydney, letters: Queen's College, Oxford; printed matter: The Mathematical Institute, Oxford, England	1946
Dale, Sir Henry Hallett, 54 Campden Hill Court, Kensington, London W. 8, England	1940
Debye, Peter, Baker Laboratory, Cornell University, Ithaca, N. Y. (U. S. A.)	[3] 1931
Deslandres, Henri, 5 rue de Teheran, Paris VIII, France	1913
Einstein, Albert, the Institute for Advanced Study, Princeton, N. J.	[4] 1922
Hadamard, Jacques, 12 rue Emile Faguet, Paris XIV, France	1926
Hardy, Godfrey Harold, Trinity College, Cambridge, England	1927

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[3] Dr. Debye became a naturalized U. S. citizen in 1946 and was elected a member of the Academy in 1947.

[4] Dr. Einstein became a naturalized U. S. citizen in 1941 and was elected a member of the Academy in 1942.

6. *Members of the National Academy of Sciences*—Continued

	Elected
Helland-Hansen, Björn, Geophysical Institute, Bergen, Norway	1947
Hill, Archibald Vivian, 16 Bishopwood Road, Highgate, London, N. 6, England	1941
Hill, James Peter, Kanimbla, Dollis Ave., London, N. 3, England	1940
Houssay, Bernardo Alberto, Viamonte 2790, Buenos Aires, Argentina	1940
Janet, Pierre, 54, rue de Varenne, Paris VII, France[5]	1938
Jeffreys, Harold, St. John's College, Cambridge, England	1945
Jones, Sir Harold Spencer, Royal Observatory, Greenwich, London S. E. 10, England	1943
Kapitza, Peter Leonidovich, Institute for Physical Problems, Academy of Sciences of U. S. S. R., Moscow, U. S. S. R	1946
Karrer, Paul, University of Zurich, Zurich, Switzerland	1945
Keith, Sir Arthur, Buckston Browne Farm, Downe, Farnborough, Kent, England	1941
Krogh, August, the Laboratory, Söbredden, Gentofte, Denmark	1937
Lacroix, F. A. Alfred, 23 rue Jean-Dolent, Paris XIV, France	1920
Levi, Giuseppe, Anatomic Institut, Corso Massimo D'Azeglio, 52, Turin, Italy	1940
Lim, Robert K. S., Army Medical Administration, Municipal Government, Shanghai, China	1942
Linderstrøm-Lang, Kaj Ulrik, Chemical Division, Carlsberg Laboratory, Copenhagen, Denmark	1947
Planck, Max, Wangenheimstrasse 21, Berlin, Grunewald, Germany	1926
Robinson, Sir Robert, Dyson Perrins Laboratory, South Parks Road, Oxford, England	1934
Ruzicka, Leopold, Department of Organic Chemistry, Institute of Technology, Zurich, Switzerland	1944
Sherrington, Sir Charles Scott, Gonville and Caius College, Cambridge, England	1924
Sommerfeld, Arnold, Dunantstrasse 6, Munich 23, Germany	1929
Southwell, Richard Vynne, Imperial College of Science and Technology, South Kensington, London S. W. 7, England	1943
Svedberg, The, Fysikalisk-Kemiska Institutionen, University of Uppsala, Uppsala, Sweden	1945
Taylor, Sir Geoffrey Ingram, Trinity College, Cambridge, England	1945
Thompson, Sir D'Arcy Wentworth, 44 South Street, St. Andrews, Fife, Scotland	1943
Valle-Poussin, C. de la, University of Louvain, Louvain, Belgium	1929
Van der Bijl, Hendrik Johannes, 722 Escom House, Rissik Street, Johannesburg, South Africa	1943
Vening Meinesz, Felix Andries, Potgieterlaan 5, Amersfoort, Holland	1939
Watson, David Meredith Seares, 14 Frognal Lane, London, N. W. 3, England	1938
Wieland, Heinrich, Sophienstrasse 9, Munich 2 N. W., Germany	1932

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[5] Died February 24, 1947; notice received in 1948.

If a foreign associate becomes a member of the Academy his name is not counted in the limit of 50 foreign associates.

7. MEDALISTS OF THE ACADEMY

	Medal	Year
Abbe, Cleveland [1]	Welfare	1916
Abbot, Charles Greeley	Draper	1910
Abel, Othenio [2]	Elliot	1920
Adams, Walter Sidney	Draper	1918
Albert Ier, Prince of Monaco [1,2]	Agassiz	1918
Allen, Edgar Johnson [1,2]	do	1937
Arkell, William Joscelyn [2]	Thompson	1944
Auwers, G. F. J. Arthur [1]	Watson	1891
Barnett, Samuel Jackson [2]	Comstock	1918
Bather, Francis Arthur [1,2]	Thompson	1932
Becquerel, Henri [1]	Barnard	1905
Beebe, William [2]	Elliot	1918
Berry, Edward Wilber	Thompson	1942
Bigelow, Henry Bryant	Agassiz	1931
Bjerknes, Vilhelm	do	1926
Black, Davidson [1,2]	Elliot	1931
Bohr, Niels	Barnard	1925
Bowen, Ira Sprague	Draper	1942
Bragg, Sir William Henry [1,3]	Barnard	1914
Do	Carty	1939
Bragg, Sir (William) Lawrence.[3]	Barnard	1914
Breuil, Henri [2]	Elliot	1924
Bridgman, P. W	Comstock	1933
Brown, Ernest William [1]	Watson	1936
Bush, Vannevar	Welfare	1945
Campbell, William Wallace [1]	Draper	1906
Cannon, Annie Jump [1,2]	do	1931
Canu, Ferdinand [1,2]	Elliot	1923
Carty, John J.[1]	Carty	1932
Chandler, Seth Carlo [1]	Watson	1894
Chapin, Charles V.[1,2]	Welfare	1928
Chapin, James P.[2]	Elliot	1932
Chapman, Frank Michler [1]	do	1917
Charlier, C. V. L.[2]	Watson	1924
Clarke, John Mason [1]	Thompson	1925
Coghill, George Ellett [1]	Elliot	1930
Colbert, Edwin H.[2]	do	1935
Conklin, Edwin Grant	Carty	1943
Cumming, Hugh S.[2]	Welfare	1935
Curie, Irène [2,4]	Barnard	1940
Davisson, C. J	Comstock	1928
Dean, Bashford [1,2]	Elliot	1921
Defant, Albert [2]	Agassiz	1932
de Sitter, Willem [1]	Watson	1929
Deslandres, Henri	Draper	1913
Dobzhansky, Theodosius	Elliot	1941
Duane, William [1]	Comstock	1923
Durand, William Frederick	Carty	1945
Eddington, Sir Arthur Stanley.[1]	Draper	1924
Einstein, Albert	Barnard	1921
Ekman, V. Walfrid [2]	Agassiz	1928
Fabry, Charles [2]	Draper	1919
Fairchild, David [2]	Welfare	1933
Fowler, Alfred [1]	Draper	1920
Gardiner, J. Stanley [2]	Agassiz	1929
Gill, Sir David [1]	Watson	1899
Goethals, George Washington.[1,2]	Welfare	1914
Gorgas, William Crawford [1,2]	do	1914
Gould, Benjamin Apthorp [1]	Watson	1887
Grabau, Amadeus William [2]	Thompson	1936
Gran, Haakon Hasberg [2]	Agassiz	1934
Hale, George Ellery [1]	Draper	1904
Harrison, Ross Granville	Carty	1947
Heisenberg, Werner [2]	Barnard	1930
Helland-Hansen, Bjorn	Agassiz	1933
Hjort, Johan [2]	do	1913
Hoover, Herbert Clark	Welfare	1920
Hoover, John Edgar [2]	do	1939
Hubble, Edwin	Barnard	1935
Huggins, Sir William [1]	Draper	1901
Irwin, Malcolm Robert [2]	Elliot	1938
Iselin, Columbus, II [2]	Agassiz	1942
Joliot, F.[2,4]	Barnard	1940
Kapteyn, J. C.[1]	Watson	1913
Keeler, James Edward [1]	Draper	1899
Kerst, Donald William[2]	Comstock	1943
Knudsen, Martin [2]	Agassiz	1936
Langley, Samuel Pierpont [1]	Draper	1886
Lashley, Karl Spencer	Elliot	1943
Lawrence, Ernest Orlando	Comstock	1938
Leuschner, Armin Otto	Watson	1916
Lillie, Frank Rattray	Agassiz	1939
Lull, Richard Swann [2]	Elliot	1933
Margerie, Emmanuel de [2]	Thompson	1923
Mather, Stephen Tyng [1,2]	Welfare	1930
Mees, C. E. Kenneth [2]	Draper	1936
Merrill, George Perkins [1]	Smith	1922
Merrill, Paul Willard	Draper	1945
Michelson, Albert Abraham [1]	do	1916
Millikan, Robert Andrews	Comstock	1913
Murphy, Robert Cushman [2]	Elliot	1936
Newton, Hubert Anson [1]	Smith	1888
Northrop, John Howard	Elliot	1939
Osborn, Henry Fairfield [1]	do	1929
Painter, Theophilus Shickel	do	1934
Park, William Hallock [1,2]	Welfare	1932
Parker, George Howard	Elliot	1937
Perry, Stuart Hoffman [2]	Smith	1945
Pettersson, Otto Sven [1,2]	Agassiz	1924
Pickering, Edward Charles [1]	Draper	1888
Pinchot, Gifford [1,2]	Welfare	1916
Plaskett, John Stanley [1,2]	Draper	1934
Proudman, Joseph [2]	Agassiz	1946
Rayleigh, Lord [1]	Barnard	1895
Reeside, John B., Jr	Thompson	1946
Ridgway, Robert [1]	Elliot	1919
Rockefeller, John Davison, Jr.[2]	Welfare	1943
Röntgen, Wilhelm Conrad [1,2]	Barnard	1900
Rose, Wickliffe [1,2]	Welfare	1931
Rowland, Henry Augustus [1]	Draper	1890
Russell, F. F.[2]	Welfare	1935
Russell, Henry Norris	Draper	1922
Rutherford, Baron: Ernst Rutherford.[1]	Barnard	1909
Schmidt, Johannes [1,2]	Agassiz	1930
Schoenfeld, Ed.[1,2]	Watson	1889
Schuchert, Charles [1]	Thompson	1934
Scott, William Berryman [1]	do	1930
Do	Elliot	1940
Seton, Ernest Thompson [1,2]	do	1928
Shapley, Harlow	Draper	1926
Sigsbee, Rear Adm. Charles Dwight.[1,2]	Agassiz	1920
Simpson, George Gaylord	Thompson	1943
Do	Elliot	1944
Slipher, V. M	Draper	1932
Smith, James Perrin [1]	Thompson	1928
Stebbins, Joel	Draper	1915
Stensiö, Erik A.: Son [2]	Elliot	1927
Stiles, Charles Wardell [1,2]	Welfare	1921
Stratton, Samuel Wesley [1]	do	1917
Sverdrup, Harald Ulrik	Agassiz	1938
Thompson, Sir D'Arcy Wentworth.	Elliot	1942
Ulrich, Edward Oscar [1]	Thompson	1930
Vaughan, T. Wayland	Agassiz	1935
Do	Thompson	1945
Vogel, Herman Karl [1]	Draper	1893
Vollmer, August [2]	Welfare	1934
Walcott, Charles Doolittle [1]	Thompson	1921
Watson, David Meredith Seares.	do	1941
Weber, Max [1,2]	Agassiz	1927
Westergaard, A. H.[1,2]	Walcott	1939
Wheeler, William Morton [1]	Elliot	1922
White, David [1]	Thompson	1931
Do	Walcott	1934
Whitney, Willis Rodney	Welfare	1937
Wilson, Edmund Beecher [1]	Elliot	1925
Do	Carty	1936
Wood, Robert Williams	Draper	1940
Woodward, Sir Arthur Smith.[1,2]	Thompson	1942
Wright, William Hammond	Draper	1928
Zeeman, Pieter [2]	do	1921

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[1] Deceased.
[2] Not member or foreign associate of the Academy.
[3] Joint award to Sir William Bragg and W. L. Bragg.
[4] Joint award to Irène Curie and F. Joliot.

8. PRESIDENTS OF THE ACADEMY

Alexander Dallas Bache	1863–67	Charles Doolittle Walcott	1917–23
Joseph Henry	1868–78	Albert Abraham Michelson	1923–27
William Barton Rogers	1879–82	Thomas Hunt Morgan	1927–31
Othniel Charles Marsh	1883–95	William Wallace Campbell	1931–35
Wolcott Gibbs	1895–1900	Frank Rattray Lillie	1935–39
Alexander Agassiz	1901–07	Frank Baldwin Jewett	1939–47
Ira Remsen	1907–13	Alfred Newton Richards	1947–
William Henry Welch	1913–17		

9. DECEASED MEMBERS AND FOREIGN ASSOCIATES

DECEASED MEMBERS

	Date of election	Date of death
Abbe, Cleveland	1878	Oct. 28, 1916
Abbot, Henry L	1872	Oct. 1, 1927
Abel, John Jacob	1912	May 26, 1938
Agassiz, Alexander	1866	Mar. 27, 1910
Agassiz, Louis	(2)	Dec. 14, 1873
Alexander, J. H	(2)	Mar. 2, 1867
Alexander, Stephen	(2)	June 25, 1883
Allen, J. A	1876	Aug. 29, 1921
Ames, Joseph Sweetman [3]	1909	June 24, 1943
Armsby, H. P	1920	Oct. 19, 1921
Atkinson, George Francis	1918 [1]	Nov. 14, 1918
Bache, Alexander Dallas	(2)	Feb. 14, 1867
Baekeland, Leo Henrik	1936	Feb. 23, 1944
Bailey, Solon Irving	1923	June 5, 1931
Baird, Spencer F	1864	Aug. 19, 1887
Barbour, Thomas	1933 [1]	Jan. 8, 1946
Barker, George F	1876 [1]	May 24, 1910
Barnard, E. E	1911	Feb. 6, 1923
Barnard, F. A. P	(2)	Apr. 27, 1889
Barnard, J. G	(2)	May 4, 1882
Barrell, Joseph	1919	May 4, 1919
Bartlett, W. H. C	(2)	Feb. 11, 1893
Barus, Carl	1892	Sept. 28, 1935
Bateman, Harry	1930 [1]	Jan. 21, 1946
Becker, George Ferdinand	1901	Apr. 20, 1919
Beecher, Charles Emerson	1899	Feb. 14, 1904
Bell, A. Graham	1883	Aug. 2, 1922
Benedict, Stanley Rossiter	1924 [1]	Dec. 21, 1936
Berry, Edward Wilber	1922 [1]	Sept. 20, 1945
Billings, John S	1883	Mar. 11, 1913
Birkhoff, George David	1918 [1]	Nov. 12, 1944
Blichfeldt, Hans Frederik	1920 [1]	Nov. 16, 1945
Boas, Franz	1900	Dec. 21, 1942
Bocher, Maxime	1909 [1]	Sept. 12, 1918
Boltwood, B. B	1911	Aug. 14, 1927
Boss, Lewis	1889	Oct. 5, 1912
Bowditch, Henry P	1887	Mar. 13, 1911
Bowie, William	1927 [1]	Aug. 28, 1940
Branner, J. C	1905	Mar. 1, 1922
Bray, William Crowell	1924 [1]	Feb. 24, 1946
Breasted, James Henry	1923	Dec. 2, 1935
Brewer, William H	1880	Nov. 2, 1910
Bridges, Calvin Blackman	1937	Dec. 27, 1938
Britton, Nathaniel L	1914	June 25, 1934
Brooks, William Keith	1884	Nov. 12, 1908
Brown, Ernest William	1923	July 22, 1938
Brown-Sequard, Charles E	1868	Apr. 2, 1894
Brush, George Jarvis	1868	Feb. 6, 1912
Bumstead, Henry A	1913	Dec. 31, 1920
Burgess, George K	1922 [1]	July 2, 1932
Calkins, Gary Nathan	1919 [1]	Jan. 4, 1943
Campbell, William Wallace	1902	June 14, 1938
Cannon, Walter Bradford	1914 [1]	Oct. 1, 1945
Carothers, Wallace H	1936	Apr. 29, 1937
Carty, John J	1917	Dec. 27, 1932
Casey, Thomas L	1890	Mar. 25, 1896
Caswell, Alexis	(2)	Jan. 8, 1877
Cattell, James McKeen	1901	Jan. 20, 1944
Chamberlin, Thomas Chrowder	1903	Nov. 15, 1928
Chandler, Charles Frederick	1874	Aug. 25, 1925
Chandler, Seth Carlo	1888 [1]	Dec. 31, 1913
Chapman, Frank Michler	1921 [1]	Nov. 15, 1945
Chauvenet, William	(2)	Dec. 13, 1877
Chittenden, Russell Henry	1890	Dec. 26, 1943
Clark, Henry James	1872	July 1, 1879
Clark, William B	1908	July 27, 1913
Clarke, Frank Wigglesworth	1909	May 23, 1931
Clarke, John M	1909	May 29, 1925
Clinton, George Perkins	1930	Aug. 13, 1937
Coffin, James H	1869	Feb. 6, 1873
Coffin, J. H. C	(2)	Jan. 8, 1890
Coghill, George Ellett	1935	July 23, 1941
Comstock, Cyrus B	1884	May 29, 1910
Comstock, George C	1899	May 11, 1934
Cook, George H	1887	Sept. 22, 1889
Cooke, Josiah P	1872	Sept. 3, 1894
Cope, Edward D	1872	Apr. 12, 1897
Coues, Elliott	1877	Dec. 25, 1899
Coulter, John Merle	1909	Dec. 23, 1928
Councilman, William T. [4]	1904	May 27, 1933
Crafts, James M	1872	June 21, 1917
Curtis, Heber Doust	1919	Jan. 9, 1942
Cushing, Harvey (Williams)	1917	Oct. 7, 1939
Dall, William H	1897 [1]	Mar. 27, 1927
Dalton, J. C	1864	Feb. 2, 1889
Dana, E. S	1884	June 16, 1935
Dana, James D	(2)	Apr. 14, 1895
Davenport, Charles Benedict	1912	Feb. 18, 1944
Davidson, George	1874	Dec. 2, 1911
Davis, Charles H	(2)	Feb. 18, 1877
Davis, William M	1904	Feb. 5, 1934
Dodge, Raymond [3]	1924 [1]	Apr. 8, 1942
Donaldson, Henry Herbert	1914	Jan. 24, 1938
Draper, Henry	1877	Nov. 20, 1882
Draper, John W	1877	Jan. 4, 1882
Duane, William	1920	Mar. 7, 1935
Dutton, C. E	1884 [1]	Jan. 4, 1912
Eads, James B	1872	Mar. 8, 1887
East, Edward Murray	1925	Nov. 9, 1938
Edison, Thomas A	1927	Oct. 18, 1931
Eigenmann, Carl H	1923	Apr. 24, 1927
Elkin, W. L	1895	May 30, 1933
Emmet, William LeRoy	1921	Sept. 26, 1941
Emmons, Samuel F	1892	Mar. 28, 1911
Englemann, George	(2)	Feb. 4, 1884
Ewing, James	1935 [1]	May 16, 1943
Farlow, W. G	1879	June 3, 1919
Ferrell, William	1868	Sept. 18, 1891
Fewkes, Jesse Walter	1914	May 31, 1930
Flexner, Simon	1908 [1]	May 2, 1946
Folin, Otto	1916 [1]	Oct. 25, 1934
Forbes, Stephen Alfred	1918	Mar. 13, 1930
Franklin, E. C	1914 [1]	Feb. 4, 1937
Frazer, John Fries	(2)	Oct. 12, 1872
Freeman, John R	1918	Oct. 6, 1932
Frost, Edwin Brant	1908	May 14, 1935
Gabb, William M	1876	May 30, 1878
Gay, Frederick Parker	1939 [1]	July 14, 1939
Genth, F. A	1872	Feb. 2, 1893
Gherardi, Bancroft	1933 [1]	Aug. 14, 1941
Gibbs, Josiah Willard	1879	Apr. 28, 1903
Gibbs, Wolcott	(2)	Dec. 9, 1908
Gilbert, Grove Karl	1883	May 1, 1918
Gill, Theodore Nicholas	1873	Sept. 25, 1914
Gilliss, James Melville	(2)	Feb. 9, 1865
Gomberg, Moses	1914 [1]	Feb. 12, 1947
Gooch, Frank Austin	1897	Aug. 12, 1929

See footnotes at end of table, p. 158.

Deceased members and foreign associates—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death
Goodale, G. L	1890	Apr. 15, 1923
Goode, G. Brown	1888	Sept. 6, 1896
Gortner, Ross Aiken	1935	Sept. 30, 1942
Gould, Augustus A	(2)	Sept. 15, 1866
Gould, Benjamin A	(2)	Nov. 26, 1896
Gray, Asa	(2)	Jan. 30, 1888
Guyot, Arnold	(2)	Feb. 8, 1884
Hadley, James	1872	Nov. 14, 1872
Hague, Arnold	1885	May 15, 1917
Haldeman, S. S	1876	Sept. 20, 1880
Hale, George Ellery	1902	Feb. 21, 1938
Hall, Asaph	1875	Nov. 22, 1907
Hall, Edwin Herbert	1911	Nov. 20, 1938
Hall, G. Stanley	1915	Apr. 24, 1924
Hall, James	(2)	Aug. 7, 1898
Halsted, W. S	1917	Sept. 7, 1922
Harper, Robert Almer	1911 [1]	May 12, 1946
Hastings, C. S	1889	Jan. 29, 1932
Hayden, F. V	1873	Dec. 22, 1887
Hayford, John F	1911	Mar. 10, 1925
Henderson, Lawrence Joseph	1919	Feb. 10, 1942
Henderson, Yandell	1923 [1]	Feb. 18, 1944
Henry, Joseph	(2)	May 13, 1878
Hibbert, Harold	1945 [1]	May 13, 1945
Hilgard, Eugene W	1872	Jan. 8, 1916
Hilgard, Julius E	(2)	May 9, 1890
Hill, George William	1874	Apr. 16, 1914
Hill, Henry B	1883	Apr. 6, 1903
Hillebrand, W. F	1908	Feb. 7, 1925
Hitchcock, Edward	(2)	Feb. 27, 1864
Holbrook, J. E	1868	Sept. 8, 1871
Holden, Edward Singleton	1885	Mar. 16, 1914
Holmes, William H.[6]	1905	Apr. 20, 1933
Howe, H. M	1917	May 14, 1922
Howe, Marshall Avery	1923	Dec. 24, 1936
Howell, William Henry	1905 [1]	Feb. 6, 1945
Hrdlicka, Ales	1921	Sept. 5, 1943
Hubbard, J. S	(2)	Aug. 16, 1863
Humphreys, A. A	(2)	Dec. 27, 1883
Hunt, T. Sterry	1873	Feb. 12, 1892
Huntington, G. S	1924	Jan. 5, 1927
Hyatt, Alpheus	1875	Jan. 15, 1902
Iddings, Joseph P	1907 [1]	Sept. 8, 1920
Jackson, Charles Loring [7]	1883 [1]	Oct. 28, 1935
Jackson, Dunham	1935 [1]	Nov. 6, 1946
James, William [8]	1903 [1]	Aug. 26, 1910
Jennings, Herbert Spencer	1914 [1]	Apr. 14, 1947
Johnson, Douglas Wilson	1932	Feb. 24, 1944
Johnson, S. W	1866	July 21, 1909
Jones, Lewis Ralph	1920 [1]	Apr. 1, 1945
Jones, Walter	1918	Feb. 28, 1935
Jordan, Edwin Oakes	1936	Sept. 2, 1936
Keeler, J. E	1900	Aug. 12, 1900
Keith, Arthur	1928 [1]	Feb. 7, 1944
Kellogg, Vernon Lyman	1930	Aug. 8, 1937
Kemp, James F	1911	Nov. 17, 1926
Kennelly, Arthur Edwin	1921	June 18, 1939
King, Clarence	1876	Dec. 24, 1901
Kirtland, Jared P	1865	Dec. 10, 1877
Kofoid, Charles Atwood	1922 [1]	May 30, 1947
Kohler, Elmer Peter	1920 [1]	May 24, 1938
Landsteiner, Karl	1932 [1]	June 26, 1943
Lane, J. Homer	1872	May 3, 1880
Langley, Samuel P	1876	Feb. 27, 1906
Laufer, Berthold	1930	Sept. 13, 1934
Lea, Matthew Carey	1892	Mar. 15, 1897
Le Conte, John	1878	Apr. 29, 1891
Le Conte, John L	(2)	Nov. 15, 1883
Le Conte, Joseph	1875	July 6, 1901
Leidy, Joseph	(2)	Apr. 30, 1891
Lesley, J. Peter	(2)	June 1, 1903
Lesquereux, Leo	1864	Oct. 25, 1889
Levene, Phoebus Aaron Theodor	1916	Sept. 6, 1940
Leverett, Frank	1929	Nov. 15, 1943
Lindgren, Waldemar	1909 [1]	Nov. 4, 1939
Loeb, Jacques	1910	Feb. 12, 1924
Longstreth, Miers F	(2)	Dec. 27, 1889
Loomis, Elias	1873	Aug. 15, 1891
Lovering, Joseph	1873	Jan. 18, 1892
Lusk, Graham	1915	July 18, 1932
Lyman, Theodore	1872	Sept. 9, 1897
McClung, Clarence Erwin	1920 [1]	Jan. 17, 1946
MacCallum, William George [9]	1921	Feb. 3, 1944
Mahan, D. H	(2)	Sept. 16, 1871
Mall, Franklin P	1907	Nov. 17, 1917
Mark, Edward Laurens [10]	1903 [1]	Dec. 16, 1946
Marsh, G. P	1866	July 23, 1882
Marsh, O. C	1874	Mar. 18, 1899
Mayer, Alfred M	1872	July 13, 1897
Mayor, A. G	1916	June 25, 1922
Mayo-Smith, Richmond	1890	Nov. 11, 1901
Meek, F. B	1869	Dec. 21, 1876
Meigs, M. C	1865	Jan. 2, 1892
Meltzer, Samuel James	1912	Nov. 8, 1920
Mendel, Lafayette B.[11]	1913	Dec. 9, 1935
Mendenhall, Charles Elwood	1918	Aug. 18, 1935
Mendenhall, T. C	1887	Mar. 22, 1924
Merriam, Clinton Hart	1902	Mar. 19, 1942
Merriam, John Campbell	1918 [1]	Oct. 30, 1945
Merrill, George Perkins	1922	Aug. 15, 1929
Michael, Arthur	1889 [1]	Feb. 8, 1942
Michelson, A. A	1888	May 9, 1931
Midgley, Thomas, Jr	1942	Nov. 2, 1944
Miller, Dayton Clarence	1921	Feb. 22, 1941
Minot, Charles Sedgwick	1897	Nov. 19, 1914
Mitchell, Henry	1885	Dec. 1, 1902
Mitchell, Silas Weir	1865 [1]	Jan. 4, 1914
Modjeski, Ralph	1925	June 26, 1940
Moore, E. H	1901	Dec. 30, 1932
Morgan, Lewis H	1875	Dec. 17, 1881
Morgan, Thomas Hunt	1909 [1]	Dec. 4, 1945
Morley, E. W	1897	Feb. 24, 1923
Morse, Edward Sylvester	1876	Dec. 20, 1925
Morse, Harmon N	1907	Sept. 8, 1920
Morton, Henry	1874	May 9, 1902
Nef, John Ulric	1904 [1]	Aug. 13, 1915
Newberry, J. S	(2)	Dec. 7, 1892
Newcomb, Simon	1869	July 11, 1909
Newton, H. A	(2)	Aug. 12, 1896
Newton, John	1876	May 1, 1895
Nichols, Edward Leamington	1901	Nov. 10, 1937
Nichols, Ernest Fox	1908	Apr. 29, 1924
Norris, James Flack	1934 [1]	Aug. 3, 1940
Norton, William A	1873	Sept. 21, 1883
Noyes, Arthur Amos	1905 [1]	June 3, 1936
Noyes, William Albert	1910 [1]	Oct. 24, 1941
Oliver, James E	1872	Mar. 27, 1895
Osborn, Henry Fairfield	1900	Nov. 6, 1935
Osborne, Thomas Burr	1910	Jan. 29, 1929
Osgood, William Fogg	1904 [1]	July 22, 1943
Packard, A. S	1872	Feb. 14, 1900
Pearl, Raymond	1916	Nov. 17, 1940
Peirce, Benjamin [12]	(1 2)	Oct. 6, 1880
Peirce, Benjamin Osgood	1906	Jan. 14, 1916
Peirce, Charles S. S	1876 [1]	Apr. 20, 1914
Penfield, Samuel L	1900	Aug. 13, 1904
Peters, C. H. F	1876 [1]	July 18, 1890
Pickering, Edward C	1873	Feb. 3, 1919
Pirsson, Louis V	1913 [1]	Dec. 8, 1919
Pourtales, L. F	1873	July 19, 1880
Powell, John W	1880	Sept. 23, 1902
Power, Frederick B	1924 [1]	Mar. 26, 1927
Prudden, T. Mitchell	1901	Apr. 10, 1924
Pumpelly, Raphael	1872	Aug. 10, 1923
Pupin, Michael Idvorsky	1905	Mar. 12, 1935
Putnam, Frederic W	1885	Aug. 18, 1915
Ransome, F. L	1914	Oct. 6, 1935
Ranson, Stephen Walter	1940	Aug. 30, 1942
Reid, Harry Fielding	1912 [1]	June 18, 1944
Remsen, Ira	1882	Mar. 4, 1927
Richards, T. W	1899 [1]	Apr. 2, 1928

See footnotes at end of table, p. 158.

Deceased members and foreign associates—Continued

DECEASED MEMBERS—continued

	Date of election	Date of death		Date of election	Date of death
Richtmyer, Floyd Karker	1932	Nov. 7, 1939	Tennent, David Hilt	1929 [1]	Jan. 14, 1941
Ridgway, Robert	1917	Mar. 25, 1929	Thaxter, Roland	1912	Apr. 22, 1932
Robinson, B. L	1921	July 27, 1935	Thomson, Elihu	1907	Mar. 13, 1937
Rodgers, John	(2)	May 5, 1882	Torrey, John	(2)	Mar. 10, 1873
Rogers, Fairman	(2)	Aug. 22, 1900	Totten, J. G	(2)	Apr. 22, 1864
Rogers, Robert E.[13]	(2)	Sept. 6, 1884	Trelease, William	1902 [1]	Jan. 1, 1945
Rogers, William A	1885	Mar. 1, 1898	Trowbridge, Augustus	1919	Mar. 14, 1934
Rogers, William B.[14]	(2)	May 30, 1882	Trowbridge, John	1878	Feb. 18, 1923
Rood, Ogden N	1865	Nov. 12, 1902	Trowbridge, William P	1872	Aug. 12, 1892
Rosa, E. B	1913	May 17, 1911	Trumbull, James H	1872	Aug. 5, 1897
Rowland, Henry A	1881	Apr. 16, 1901	Tuckerman, Edward	1868	Mar. 15, 1886
Royce, Josiah	1906 [1]	Sept. 14, 1916	Ulrich, Edward Oscar	1917 [1]	Feb. 22, 1944
Rutherford, Lewis M	(2)	May 30, 1892	Van Hise, C. R	1902	Nov. 19, 1918
Ryan, Harris Joseph	1920	July 3, 1934	Van Vleck, Edward Burr	1911 [1]	June 3, 1943
Sabine, Wallace C. W	1917	Jan. 10, 1919	Vaughan, Victor Clarence	1915 [1]	Nov. 21, 1929
St. John, Charles Edward	1924	Apr. 26, 1935	Verrill, Addison E.[16]	1872	Dec. 10, 1926
Sapir, Edward	1934 [1]	Feb. 4, 1939	Walcott, Charles D	1896 [1]	Feb. 9, 1927
Sargent, Charles S	1895	Mar. 22, 1927	Walker, Francis A	1878	Jan. 5, 1897
Sauveur, Albert	1927	Jan. 26, 1939	Warren, G. K	1876	Aug. 8, 1882
Saxton, Joseph	(2)	Oct. 26, 1873	Washburn, E. W	1932	Feb. 6, 1934
Schlesinger, Frank	1916	July 10, 1943	Washburn, Margaret Floy[17]	1931 [1]	Oct. 29, 1939
Schott, Charles A	1872	July 31, 1901	Washington, H. S	1921 [1]	Jan. 7, 1934
Schuchert, Charles	1910 [1]	Nov. 20, 1942	Watson, James C	1868	Nov. 23, 1880
Scott, William Berryman	1906 [1]	Mar. 29, 1947	Watson, Sereno	1889	Mar. 9, 1892
Scudder, Samuel H	1877	May 17, 1911	Webster, A. G	1903	May 15, 1923
Sellers, William	1873 [1]	Jan. 24, 1905	Welch, William H	1895	Apr. 30, 1934
Setchell, William Albert	1919	Apr. 4, 1943	Wells, Harry Gideon	1925 [1]	Apr. 26, 1943
Silliman, Benjamin, Sr	(2)	Nov. 24, 1864	Wells, Horace L	1903	Dec. 19, 1924
Silliman, Benjamin, Jr	(2)	Jan. 14, 1885	Wheeler, Henry Lord	1909 [1]	Oct. 30, 1914
Smith, Alexander	1915	Sept. 8, 1922	Wheeler, William Morton	1912	Apr. 19, 1937
Smith, Edgar F	1899	May 3, 1928	White, Charles A	1889	June 29, 1910
Smith, Erwin F	1913	Apr. 6, 1927	White, David	1912	Feb. 7, 1935
Smith, J. Lawrence	1872	Oct. 12, 1883	White, Henry Seely	1915 [1]	May 20, 1943
Smith, James Perrin	1925 [1]	Jan. 1, 1931	Whitman, C. O	1895	Dec. 6, 1910
Smith, Sidney Irving [15]	1884	May 6, 1926	Whitmore, Frank Clifford	1946 [1]	June 24, 1947
Smith, Theobald	1908	Dec. 10, 1934	Whitney, Josiah D.[12]	(2)	Aug. 19, 1896
Sperry, Elmer A	1925 [1]	June 16, 1930	Whitney, William D.[18]	1865 [1]	June 29, 1894
Squier, George O	1919	Mar. 24, 1934	Wilczynski, E. J.[19]	1919	Sept. 14, 1932
Stejneger, Leonhard	1923	Feb. 28, 1943	Williston, Samuel W	1915	Aug. 30, 1918
Stieglitz, Julius Oscar	1911	Jan. 10, 1937	Wilson, Edmund Beecher	1899	Mar. 3, 1939
Stillwell, Lewis Buckley	1921 [1]	Jan. 19, 1941	Wilson, Henry VanPeters	1927 [1]	Jan. 4, 1939
Stimpson, William	1868	May 26, 1872	Winlock, Joseph	(2)	June 11, 1875
Stockard, Charles Rupert	1922 [1]	Apr. 7, 1939	Wood, Horatio C	1879 [1]	Jan. 3, 1920
Story, William Edward	1908 [1]	Apr. 11, 1930	Woodruff, Lorande Loss	1924 [1]	June 23, 1947
Stratton, S. W	1917	Oct. 18, 1931	Woodward, J. J	1873	Aug. 17, 1884
Strong, Theodore	(2)	Feb. 1, 1869	Woodward, Robert S	1896	June 29, 1924
Sullivant, W. S	1872	Apr. 30, 1873	Worthen, A. H	1872	May 6, 1888
Sumner, Francis Bertody	1937 [1]	Sept. 6, 1945	Wright, Arthur Williams	1881	Dec. 19, 1915
Swain, George F	1923	July 1, 1931	Wyman, Jeffries	(2)	Sept. 4, 1878
Swasey, Ambrose	1922	June 15, 1937	Young, Charles A	1872	Jan. 3, 1904
Taylor, Charles Vincent	1943 [1]	Feb. 22, 1946	Zinsser, Hans	1924 [1]	Sept. 4, 1940
Taylor, David Watson	1918	July 28, 1940			

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[1] Biographical memoirs have not been published.
[2] Charter member, Mar. 3, 1863.
[3] Transferred to roll of members emeriti, 1938.
[4] Transferred to roll of members emeriti, 1929.
[5] Transferred to roll of members emeriti, 1936.
[6] Transferred to roll of members emeriti, 1932.
[7] Transferred to roll of members emeriti in 1933.
[8] Resigned, 1909.
[9] Transferred to roll of members emeriti in 1943.
[10] Transferred to roll of members emeriti in 1944.
[11] Transferred to roll of members emeriti in 1935.
[12] Resigned, 1874.
[13] Dropped, 1866; reelected, 1875.
[14] Dropped, 1866, reelected, 1872.
[15] Transferred to roll of members emeriti in 1908.
[16] Transferred to roll of members emeriti in 1924.
[17] Transferred to roll of members emeriti in 1937.
[18] Resigned, 1882.
[19] Transferred to roll of members emeriti in 1925.

Deceased members and foreign associates—Continued

DECEASED FOREIGN ASSOCIATES

Adams, Frank Dawson
Adams, J. C.
Airy, Sir George B.
Argelander, F. W. A.
Arrhenius, S. A.
Auwers, G. F. J. Arthur
Backlund, Oskar
Baer, Karl Ernest von
Baeyer, Adolf von
Barcroft, Sir Joseph
Barrande, Joachin
Barrois, Charles
Bateson, William
Beaumont, L. Elie de
Becquerel, Henri
Berthelot, M. P. E.
Bertrand, J. L. F.
Boltzmann, Ludwig
Bornet, Edouard
Boussingault, J. B. J. D.
Boveri, Theodor
Bragg, Sir William
Braun, Alexander
Brewster, Sir David
Brøgger, W. C.
Bunsen, Robert W.
Burmeister, C. H. C.
Candolle, Alphonse de
Cayley, Arthur
Chasles, Michel
Chevreul, M. E.
Clausius, Rudolph
Cornu, Alfred
Crookes, Sir William
Darboux, Gaston
Darwin, Sir George Howard
de Sitter, Willem
de Vries, Hugo
Dewar, Sir James
Dove, H. W.
Dumas, J. B.
Dyson, Sir Frank Watson
Eddington, Sir Arthur Stanley
Ehrlich, Paul
Eijkman, Christian
Engler, Adolph
Faraday, Michael
Fischer, Emil
Forsyth, A. R.
Fowler, Alfred
Geikie, Sir Archibald
Gengenbaur, Karl
Gill, Sir David
Gyldém, Hugo
Goebel, K. E. von
Groth, Paul von
Haber, Fritz
Hadfield, Sir Robert A.
Haldane, John Scott
Hamilton, Sir William Rowan
Heim, Albert
Helmholtz, Baron H. von
Hertwig, Richard
Hilbert, David
Hoff, J. H. van't
Hofmann, A. W.
Hooker, Sir Joseph D.
Hopkins, Sir Frederick Gowland
Huggins, Sir William
Huxley, T. H.
Ibañez, Carlos
Janssen, J.
Jordan, M. E. C.
Joule, James P.
Kapteyn, J. C.
Kekulé, August
Kelvin, Lord
Kirchoff, G. R.
Klein, Felix
Koch, Robert
Kohlrausch, Frederich
Kölliker, Albert von
Kossel, Albrecht
Kronecker, Hugo
Kustner, Karl Friedrich
Lacaze-Duthiers, Henri de
Lankester, Sir E. Ray
Larmor, Sir Joseph
Leuckart, Rudolph
Lie, Sophus
Liebig, Justus von
Lister, Lord
Loewy, Maurice
Lorentz, Hendrik Antoon
Ludwig, K. F. W.
Marconi, Marchese
Marey, E. J.
Mendeléeff, D. I.
Milne-Edwards, Henri
Moissan, Henri
Murchison, Sir Roderick I.
Murray, Sir John
Onnes, Heike Kamerlingh
Oppolzer, Theodore von
Ostwald, Wilhelm
Owen, Sir Richard
Parsons, Sir Charles Algernon
Pasteur, Louis
Pavlov, Ivan P.
Penck, Albrecht
Peters, C. H. F.
Pfeffer, Wilhelm
Picard, Emile
Plano, G. A. A.
Poincaré, Jules Henri
Prain, Sir David
Rammelsberg, C. F.
Ramon y Cajal, Santiag
Ramsay, Sir William
Rayleigh, Lord
Regnault, Victor
Retzius, Gustav
Reymond, Emil Du Bois
Richthofen, F. von
Rosenbusch, Karl Harry Ferdinand
Roux, Wilhelm
Rubner, Max
Rutherford, Lord
Sabatier, Paul
Sachs, Julius von
Schiaparelli, Giovanni
Schneider, Charles Eugene
Schuster, Sir Arthur
Seeliger, Hugo R. von
Sørensen, Søren Peter Lauritz
Spearman, Charles Edward
Spemann, Hans
Stas, Jean Servais
Stokes, Sir George G.
Strasburger, Edouard
Struve, Otto von
Stumpf, Carl
Suess, Eduard
Sylvester, J. J.
Thomson, Sir Joseph J.
Tisserand, F. F.
Van der Waals, J. D.
Virchow, Rudolph von
Vogel, H. C.
Volterra, Vito
Waldeyer, Wilhelm
Weierstrauss, Karl
Weismann, August
Willstaetter, Richard
Wöhler, Frederich
Wolf, Max F. J. C.
Wundt, Wilhelm
Würtz, Adolph
Zirkel, Ferdinand
Zittell, K. A. R. von

APPENDIX B

NATIONAL RESEARCH COUNCIL

1. EXECUTIVE ORDER ISSUED BY THE PRESIDENT OF THE UNITED STATES, MAY 11, 1918

The National Research Council was organized in 1916 at the request of the President by the National Academy of Sciences, under its congressional charter, as a measure of national preparedness. The work accomplished by the Council in organizing research and in securing cooperation of military and civilian agencies in the solution of military problems demonstrates its capacity for larger service. The National Academy of Sciences is therefore requested to perpetuate the National Research Council, the duties of which shall be as follows:

1. In general, to stimulate research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, of strengthening the national defense, and of contributing in other ways to the public welfare.
2. To survey the larger possibilities of science, to formulate comprehensive projects of research, and to develop effective means of utilizing the scientific and technical resources of the country for dealing with these projects.
3. To promote cooperation in research, at home and abroad, in order to secure concentration of effort, minimize duplication, and stimulate progress; but in all cooperative undertakings to give encouragement to individual initiative, as fundamentally important to the advancement of science.
4. To serve as a means of bringing American and foreign investigators into active cooperation with the scientific and technical services of the War and Navy Departments and with those of the civil branches of the Government.
5. To direct the attention of scientific and technical investigators to the present importance of military and industrial problems in connection with the war, and to aid in the solution of these problems by organizing specific researches.
6. To gather and collate scientific and technical information, at home and abroad, in cooperation with governmental and other agencies, and to render such information available to duly accredited persons.

Effective prosecution of the Council's work requires the cordial collaboration of the scientific and technical branches of the Government, both military and civil. To this end representatives of the Government, upon the nomination of the National Academy of Sciences, will be designated by the President as members of the Council, as heretofore, and the heads of the departments immediately concerned will continue to cooperate in every way that may be required.

WOODROW WILSON.

The WHITE HOUSE, *May 11, 1918.*

(No. 2859)

2. ARTICLES OF ORGANIZATION, NATIONAL RESEARCH COUNCIL

The National Academy of Sciences, under the authority conferred upon it by its charter enacted by the Congress, and approved by President Lincoln on March 3, 1863, and pursuant to the request expressed in an Executive order made by President Wilson on May 11, 1918, adopts the following Articles of Organization for the National Research Council.

ARTICLE I—PURPOSE

It shall be the purpose of the National Research Council to promote research in the mathematical, physical, and biological sciences, and in the application of these sciences to engineering, agriculture, medicine, and other useful arts, with the object of increasing knowledge, strengthening the national defense, and of contributing in other ways to the public welfare, as expressed in the Executive order of May 11, 1918. To this end and under policies determined by the National Academy of Sciences, the National Research Council shall serve, whenever possible and desirable, as the principal operating agency of the National Academy of Sciences, furnishing professional and research advice to governmental and other organizations, and administering such funds as may be entrusted to it.

ARTICLE II—MEMBERSHIP

SECTION 1. The membership of the National Research Council shall be chosen with the view of making the Council an effective agency of cooperation in the fields of science and technology named in article I.

SEC. 2. The Council shall be composed of (1) Representatives of national scientific and technical societies; (2) representatives of the Government, as provided in the Executive order; (3) representatives of other research organizations; (4) persons whose aid may advance the objectives of the Council.

SEC. 3. The membership of the Council shall consist specifically of the members of the executive board and the members of the divisions, constituted as provided in articles III and IV.

SEC. 4. Membership in the Council shall be limited to citizens of the United States. This, however, shall not be construed as applying to membership in committees appointed by or acting under the Council, whose members are not necessarily members of the Council, provided that members not citizens of the United States shall in no case form a majority of any committee.

ARTICLE III—DIVISIONS

SECTION 1. The National Research Council shall be organized in divisions dealing with general relations and with branches of science and technology.

SEC. 2. The divisions and the grouping of subjects in article III, section 1, shall be determined by the Council of the National Academy of Sciences on the recommendation of the Executive Board of the National Research Council.

SEC. 3. (*a*) Each division shall consist of a chairman, one or more vice chairmen, such representatives of the Government and of national or international organizations as may seem essential for the conduct of the business of the divisions, and members at large appointed as provided in article VI.

(*b*) Each division shall have an executive committee, consisting of the chairman and three or more of the members, who shall be chosen by the division at a regular meeting, and hold office for 1 year terminating on June 30. Between meetings of a division its executive committee shall have power to act on all matters for the division, except those which may be reserved by the division for its own action; but the executive committee shall report all its actions to the division.

(*c*) The terms of office of the chairmen of divisions shall be so arranged by the Chairman of the National Research Council that approximately one-third of these terms expire each year.

(*d*) The terms of office of the vice chairmen of divisions shall be for 1 year.

SEC. 4. The chairman of each division shall be, ex officio, a member of all committees of the division.

SEC. 5. Actions by the divisions involving matters of policy shall be subject to approval by the Executive Board.

ARTICLE IV—ADMINISTRATION

SECTION 1. The general officers of the National Research Council shall be a Chairman, chosen as provided in article 5, section 1, and such other officers as may be appointed by the Council of the Academy on recommendation of the Chairman of the National Research Council.

SEC. 2. The affairs of the National Research Council shall be administered by the Chairman of the National Research Council, with the advice and counsel of the Executive Board. Actions involving financial responsibilities or the appointment of general officers must be approved by the Council of the Academy, or the executive committee of the Council of the Academy.

SEC. 3. The Executive Board shall consist of the Chairman and officers of the National Research Council; the chairmen of the divisions of the Council; and, ex officio, members of the executive committee of the Council of the National

Academy of Sciences (who may but shall not be required to attend meetings of the Board since matters of policy will be acted on by the Council of the Academy or its executive committee). The Council of the Academy, on the recommendation of the Chairman of the National Research Council, may add members to the Executive Board for specified terms of office.

ARTICLE V—APPOINTMENT AND DUTIES OF OFFICERS OF THE RESEARCH COUNCIL

SECTION 1. The Chairman of the National Research Council shall be appointed by the Council of the National Academy of Sciences, and shall hold office at the pleasure of that council. The Chairman shall be the executive officer of the National Research Council and shall have charge of its general administration. He shall act as chairman of its executive board in the absence of the president and vice president of the Academy.

SEC. 2. In case of the absence or disability of the Chairman of the National Research Council an acting chairman may be appointed by the Council of the National Academy of Sciences, or by the executive committee of the Council of the Academy.

SEC. 3. There may be appointed by the Council of the National Academy of Sciences upon recommendation of the Chairman of the National Research Council, one or more vice chairmen who shall have such duties as may be prescribed by the Chairman of the National Research Council.

ARTICLE VI—NOMINATION AND APPOINTMENT OF OFFICERS AND MEMBERS OF DIVISIONS

SECTION 1. (*a*) The chairman of each division shall be appointed for 3 years by the Council of the National Academy of Sciences upon nomination by the Chairman of the National Research Council in consultation with the executive committee of the division concerned; except that the foreign secretary of the National Academy of Sciences shall be the chairman of the Division of International Relations of the National Research Council. The chairman shall direct the work of the division.

(*b*) The organizations to be represented in each of the divisions shall be determined by the Executive Board on the recommendation of the division concerned.

(*c*) The representatives of organizations in each division shall be nominated by the organizations, upon invitation of the chairman of the division, and upon the recommendation of the Chairman of the National Research Council shall be appointed by the President of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

(*d*) Members at large, if any, in each division shall be nominated by the division concerned, and upon recommendation of the Chairman of the National Research Council shall be appointed by the president of the National Academy of Sciences to membership in the National Research Council for a term of 3 years, and assigned to the division.

SEC. 2. The Government bureaus, civil and military, to be represented in the divisions of the National Research Council shall be determined by the Executive Board upon recommendation of the Chairman of the National Research Council in consultation with the divisional chairman concerned.

SEC. 3. The representatives of the Government shall be selected by the Secretaries of the departments or the heads of the independent agencies concerned, after conference with the Chairman of the National Research Council, and the names of those thus proposed shall be presented to the President of the National Academy of Sciences to be nominated by him to the President of the United States for designation for service with the National Research Council. Each Government representative shall serve during the pleasure of the President of the United States, not to exceed a term of 3 years.

SEC. 4. The term of office of officers and members, unless otherwise provided, shall terminate on June 30 of the year in which the appointments expire.

SEC. 5. Vacancies occurring in the divisions may be filled for the unexpired term by the method used for the original appointment.

SEC. 6. In a national emergency the Council of the Academy, with the advice of the Chairman of the National Research Council, may reorganize any division without regard for the procedures of article VI.

ARTICLE VII—MEETINGS

SECTION 1. Regular meetings of the Executive Board shall be held in the city of Washington once each month except during July and August, at such dates as shall be determined by the Chairman of the National Research Council. A majority of the members of the Board, other than those representing the executive committee of the Council of the National Academy of Sciences, shall constitute a quorum for the transaction of business.

SEC. 2. Each division shall hold at least one stated meeting during the year, at a time to be determined by the chairman of the division in consultation with the Chairman of the National Research Council. Special meetings may be called at other times by the chairman of the division.

ARTICLE VIII—REPORTS

SECTION 1. An annual report on the work of the National Research Council shall be presented by the Chairman to the National Academy of Sciences for inclusion in the annual report of the Academy to Congress.

ARTICLE IX—AMENDMENTS

SECTION 1. By action of the National Academy of Sciences on April 29, 1919, power of amendment of these Articles of Organization is given to the Council of the National Academy of Sciences.

3. BYLAWS

Executive Board

1. The Executive Board shall concern itself with the purposes and objectives of the National Research Council and with matters relating to the determination of broad general policy within the authority conferred upon the National Research Council by the National Academy of Sciences. It shall serve as an advisory and consultative body to the Chairman of the Research Council.

Chairman, National Research Council

2. The duties of the Chairman of the National Research Council shall be the following:

(*a*) He shall function as the executive officer of the National Research Council and shall be responsible for its administration.

(*b*) He shall prepare in April of each year, for approval by the Executive Board, the proposed administrative budget of the National Research Council for the ensuing year, and after such approval shall transmit the proposed budget to the finance committee of the National Academy of Sciences for presentaton to the Council of the Academy for its action.

(*c*) He shall report at each meeting of the Executive Board all pertinent actions taken by him in the interim between meetings of the Board.

(*d*) He shall, from time to time, inform the Council of the National Academy of Sciences of the activities of the Research Council.

(*e*) He shall maintain jurisdiction over all reports issued in the name of the Research Council, shall formulate such regulations as may be necessary for their proper control, and shall insure that such regulations are made known to the chairmen of divisions, committees, boards, and heads of offices of the Research Council.

(*f*) He shall take whatever steps are necessary to insure effective integration of the divisions one with another.

(*g*) He shall be a member of all divisions, committees, and boards of the National Research Council.

Committees

3. The establishment of standing committees of the Executive Board and the membership of such committees shall be approved by the Executive Board upon recommendation of the Chairman of the Research Council.

4. The establishment of divisional committees or boards shall be recommended by the chairman of the division concerned, with the advice and counsel of the division or its executive committee, and approved by the Chairman of the Research Council.

5. Members of special committees or boards organized within any division shall be selected by the chairman of the division and approved by the Chairman of the Research Council.

6. The establishment of special committees or boards, and the membership of such committees or boards, organized on an interdivisional basis or independent of any division shall be approved by the Chairman of the Research Council (if possible with the advice and counsel of the Executive Board.)

7. The terms of appointment of all committees or boards shall expire on June 30 following the date of their appointment, except that, with the approval of the Chairman of the National Research Council, members of committees or boards may be appointed for varying terms up to 5 years in order to secure rotation of membership on committees or boards which have continuing functions.

Special funds

8. Programs to be undertaken by the National Research Council involving the solicitation of special funds for the purpose shall be approved in advance by the Council of the National Academy of Sciences or its executive committee upon recommendation by the Chairman of the Research Council.

9. The solicitation of funds for the support of programs so approved by the Council of the National Academy or its executive committee shall be made by or under the direction of the Chairman of the Research Council.

10. Budgets for the expenditure of special funds granted to the National Research Council, including those for fellowships and grants-in-aid, shall be submitted for approval to the Chairman of the Research Council by the chairman of the division concerned, or in the case of interdivisional or independent committees or boards, by the chairman of the committee or board.

11. No member of a committee or board constituted to administer funds entrusted to the National Research Council shall receive an honorarium or salary from such funds for his services, except in cases specifically authorized in advance by the Chairman of the Research Council; but members of such committees may be reimbursed from the funds for expenses incurred in the work of the committee or board.

Officers of divisions

12. The chairman of a division shall be a member of all committees or boards of the division.

13. The vice chairman of each division shall be selected from the membership of the division by the divisional chairman concerned, with the advice and counsel of his executive committee, and shall be appointed by the divisional chairman after approval by the Chairman of the National Research Council.

14. The term of office of the vice chairman of a division shall be for 1 year, and shall terminate on June 30 following the date of his appointment.

Reports

15. It shall be the duty of the chairmen of divisions, chairmen of interdivisional committees or boards, and the heads of other offices to submit annual reports of the activities of their respective divisions, committees, boards, or offices to the Chairman of the Research Council on or before July 15. The Chairman of the Research Council may request such interim reports of activities as are, in his judgment, necessary and desirable.

Amendments

16. Amendments of these Bylaws may be made by the Executive Board at any authorized meeting of the Board.

4. ORGANIZATION OF THE NATIONAL RESEARCH COUNCIL, 1946–47

Officers and Executive Board

OFFICERS

Chairman.—Detlev W. Bronk, director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Treasurer.—Jerome C. Hunsaker, treasurer, National Academy of Sciences; professor in charge of the department of aeronautical engineering, Massachusetts Institute of Technology, Cambridge, Mass.

Executive secretary.—Raymund L. Zwemer, National Research Council, Washington, D. C.

Business manager.—George D. Meid, National Research Council, Washington, D. C.

Assistant business manager.—Bernard L. Kropp.

Assistant business manager.—Charles L. Wade.

EXECUTIVE BOARD

Chairman and treasurer of the National Research Council.
Chairmen of the Divisions of the Council.

Executive committee of the Council of the National Academy of Sciences

Detlev W. Bronk.

Frank B. Jewett, president, National Academy of Sciences; 140 West Street, New York, N. Y.

L. P. Eisenhart, vice president, National Academy of Sciences; professor of mathematics emeritus, Princeton University; 25 Alexander Street, Princeton, N. J.

J. C. Hunsaker.

Walter R. Miles, professor of psychology, school of medicine, Yale University, New Haven, Conn.

W. M. Stanley, member, Rockefeller Institute for Medical Research, Princeton, N. J.

F. E. Wright, home secretary, National Academy of Sciences; 2134 Wyoming Avenue, Washington, D. C.

COMMITTEES

The chairman of the National Research Council is a member of all committees and divisions of the Research Council.

Committee on exhibits (joint committee with the National Academy of Sciences).—Chairman, F. E. Wright.

Committee on patent policy.—Chairman, F. W. Willard, 12 Hawthorne Place, Summit, N. J.

TECHNICAL COMMITTEES

Advisory committee on scientific personnel.—Chairman, Henry A. Barton' director, American Institute of Physics, 57 East Fifty-fifth Street, New York City.

Advisory committee on undersea warfare.—Chairman, John T. Tate, professor of physics, University of Minnesota, Minneapolis, Minn.

Committee of apparatus makers and users.—Chairman, W. D. Collins, Chief, Division of Quality of Water, United States Geological Survey, Washington, D. C.

Committee on applied mathematical statistics.—Chairman, L. P. Eisenhart.

Subcommittee on biology.—Chairman, Chester I. Bliss, biometrician, Connecticut Agricultural Experiment Station, New Haven, Conn.

Subcommittee on chemistry.—Chairman, Hugh M. Smallwood, head of the department of physical research, general laboratories, United States Rubber Co., Passaic, N. J.

Subcommittee on engineering and manufacturing.—Chairman, W. A. Shewhart, engineer, Bell Telephone Laboratories, Inc., Murray Hill, N. J.

Subcommittee on industrial management.—Chairman, Charles F. Roos, president, Institute of Applied Econometrics, Inc., 500 Fifth Avenue, New York City.

Subcommittee on mathematical statistics.—Chairman, S. S. Wilks, professor of mathematical statistics, Princeton University, Princeton, N. J.

Subcommittee on medicine.—Chairman, Lowell J. Reed, professor of biostatistics and dean of the School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Md.

Subcommittee on psychology.—Chairman, Harold Gulliksen, professor of psychology, Princeton University, Princeton, N. J.

Army-Navy-NRC vision committee.—Executive secretary, Donald G. Marquis, University of Michigan, Ann Arbor, Mich.

Chemical-biological coordination center—advisory committee.—Chairman, M. C. Winternitz, Anthony N. Brady professor of pathology, school of medicine, Yale University, New Haven, Conn.

Subcommittee on biochemistry.—Chairman, J. S. Fruton, associate professor of physiological chemistry, school of medicine, Yale University, New Haven, Conn.

Subcommittee on chemotherapy.—Chairman, Harry Eagle, senior surgeon, United States Public Health Service, laboratory of experimental therapeutics, Johns Hopkins School of Hygiene, Baltimore, Md.

Subcommittee on entomology.—Chairman, Roger B. Friend, State entomologist, Connecticut Agricultural Experiment Station, New Haven, Conn.

Subcommittee on malignancy.—Chairman, C. P. Rhoads, director, Memorial Hospital, 444 East Sixty-eighth Street, New York, N. Y. (Appropriate committee on growth subcommittee.)

Subcommittee on mammalogy.—Chairman, Remington Kellogg, curator, Division of Mammals, United States National Museum, Washington, D. C.

Subcommittee on medicine.—Chairman, W. T. Longcope, professor of medicine emeritus, school of medicine, Johns Hopkins University, Baltimore, Md.

Subcommittee on microbiology.—Chairman, J. H. Mueller, professor of bacteriology and immunology, Harvard Medical School, Boston, Mass.

Subcommittee on pathology.—Chairman, M. C. Winternitz.

Subcommittee on physical chemistry.—Chairman, W. A. Noyes, Jr., professor of physical chemistry, University of Rochester, Rochester, N. Y.

Subcommittee on plant ecology.—Chairman, R. F. Griggs, chairman, Division of Biology and Agriculture, National Research Council, Washington, D. C.

Subcommittee on plant physiology.—Chairman, David R. Goddard, professor of botany, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on sanitary engineering.—Chairman, Abel Wolman, professor of sanitary engineering, Johns Hopkins University, Baltimore, Md.

Subcommittee on veterinary medicine.—Chairman, R. A. Kelser, dean, school of veterinary medicine, University of Pennsylvania, Philadelphia, Pa.

Subcommittee on organic chemistry.—Chairman, Roger Adams, professor of organic chemistry, University of Illinois, Urbana, Ill.

Subcommittee on physiology and pharmacology.—Chairman, McKeen Cattell, professor of pharmacology, Cornell University Medical College, New York, N. Y.

Subcommittee on chemical codification.—Chairman, C. C. Stock, Memorial Hospital, New York City.

Subcommittee on biological codification.—Chairman, McKeen Cattell.

Subcommittee on inorganic chemistry panel.—Chairman, J. C. Bailar, professor of chemistry, University of Illinois, Urbana, Ill.

Committee on geophysics (acting also as the executive committee of the American Geophysical Union, which represents the American section of the International Union of Geodesy and Geophysics).—President, L. H. Adams, director, geophysical laboratory, Carnegie Institution of Washington, Washington, D. C.

Committee on neurobiology.—Chairman, Detlev W. Bronk.

Committee on problems of deafness.—Chairman, Percival Hall, president emeritus, Columbia Institution for the Deaf, Washington, D. C.

Subcommittee on evaluation of individual hearing aids in public schools or the hearing.—Chairman, Arthur I. Gates, professor of education, teachers college, Columbia University, New York City.

Subcommittee on construction and installation of intelligence and achievement tests.—Chairman, Irving S. Fusfeld, dean and professor of psychology in charge of research, Gallaudet College, Washington, D. C.

Subcommittee on intelligence and achievement surveys.—Chairman, Irving S. Fusfeld.

Subcommittee on screening tests.—Chairman, Harold Westlake, adviser, division of special education, department of public instruction, Harrisburg, Pa.

Subcommittee on remedial measures for the prevention of deafness.—Chairman, Stacy R. Guild, associate professor of otology and director of the otological research laboratory, school of medicine, Johns Hopkins University, Baltimore, Md.

Subcommittee on effect of group hearing aids in a particular school for the deaf.—Chairman, Harvey Fletcher, acoustical research director, Bell Telephone Laboratories, Inc., 463 West Street, New York City.

Pacific Science Board.—Chairman, Knowles A. Ryerson, professor of horticulture and assistant dean, College of Agriculture, University of California, Davis Calif.

West Coast advisory committee.—Chairman, R. L. Usinger, University of California.

Honolulu committee.—Chairman, Peter H. Buck, director, Bishop Museum, Honolulu, T. H.

Joint activities

Conference Board of Associated Research Councils (American Council of Learned Societies, American Council on Education, National Research Council, Social Science Research Council).—Chairman, Ross G. Harrison, professor of zoology emeritus, Yale University, New Haven, Conn.

Committee on history of science in the United States (joint committee with the American Council of Learned Societies and Social Science Research Council).—Chairman, Arthur M. Schlesinger, Professor of History, Harvard University, Cambridge, Mass.

Committee on Latin American studies (joint committee with the American Council of Learned Societies and the Social Science Research Council).—Chairman, Lewis Hanke, director, Hispanic Foundation, Library of Congress, Washington, D. C.

Committee on methods of measurement of opinion, attitudes, and consumer wants (joint committee with the Social Science Research Council).—Chairman, Samuel A. Stouffer, professor of sociology, Harvard University, Cambridge, Mass.

Committee on specialized personnel (joint committee with the American Council of Learned Societies, American Council on Education, and Social Science Research Council).—Chairman, M. H. Trytten, director, Office of Scientific Personnel, National Research Council, Washington, D. C.

REPRESENTATIVES OF THE COUNCIL ON—

Editorial board of the Proceedings of the National Academy of Sciences.—Arthur Bevan, Detlev W. Bronk, Frederick M. Feiker, R. Clifton Gibbs, Robert F. Griggs, A. Irving Hallowell, Louis P. Hammett, Lewis H. Weed; member of the editorial executive committee, Detlev W. Bronk.

Board of trustees of Science Service.—C. G. Abbot, Ross G. Harrison, Hugh S. Taylor.

American Documentation Institute.—Raymund L. Zwemer.

Advisory Council on War History.—John F. Fulton.

Committee Z-39 on standardization in the field of library work and documentation, of the American Standards Association.—Louis Jordan.

Arrangements committee for the twenty-fifth session of the International Statistical Institute.—Frederick Stephan.

National Council on Rehabilitation.—Harold G. Wolff.

Committee on Procurement of Foreign Library Materials, of the Library of Congress.—George W. Corner.

Advisory Committee on Scientific Personnel of the Civil Service Commission.—M. H. Trytten.

Advisory committee on the quarterly book list of the Library of Congress.—Ross G. Harrison.

American Commission, United Nations Educational, Scientific and Cultural Organization.—Detlev W. Bronk.

Divisions of the Council

I. DIVISION OF INTERNATIONAL RELATIONS

Chairman, ex officio.—Detlev W. Bronk.
Vice chairman.—Harlow Shapley.
Secretary.—Raymund L. Zwemer.

EXECUTIVE COMMITTEE

Chairman.—Detlev W. Bronk; vice chairman, Harlow Shapley; A. J. Carlson, E. C. Crittenden, John A. Fleming.

MEMBERS OF THE DIVISION

EX OFFICIO

President of the National Academy of Sciences.—Frank B. Jewett, 140 West Street, New York City.

Foreign secretary of the National Academy of Sciences.—Detlev W. Bronk, professor of biophysics, and director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

Chairman of the National Research Council and the chairmen of all divisions of the Council.

REPRESENTATIVES OF—

American Association for the Advancement of Science

F. R. Moulton, permanent secretary, American Association for the Advancement of Science, 1515 Massachusetts Avenue, Washington, D. C.

American Academy of Arts and Sciences

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Committee on the history of psychology and the war.—Chairman, Robert M. Yerkes.

Committee on international cooperation in anthropology (joint committee with the Division of International Relations).—Chairman, M. J. Herskovits.

Committee on international cooperation in psychology (joint committee with the Division of International Relations).—Chairman, Herbert S. Langfeld, Stuart professor of psychology, Princeton University, Princeton, N. J.

Subcommittee on Latin American psychology.—Chairman, Margaret E. Hall, bureau of child study, Chicago Board of Education, Chicago, Ill.

Committee on Latin American anthropology.—Chairman, John P. Gillin, professor of anthropology, University of North Carolina, Chapel Hill, N. C.

Subcommittee on academic relations.—Chairman, Charles Wagley.

Subcommittee on current information.—Chairman, Ralph L. Beals.

Subcommittee on microfilm records.—Chairman, Sol Tax.

Pacific Committee on the Anthropological Sciences.—Chairman, George P. Murdock, professor of anthropology, Yale University, New Haven, Conn.

Committee on selection and training of aircraft pilots.—Chairman, Morris S. Viteles, department of psychology, University of Pennsylvania, Philadelphia, Pa.

Committee on war service of anthropologists.—(In process of reorganization.)

REPRESENTATIVES OF THE DIVISION ON—

American Council on Human Relations.—Morris E. Opler, assistant professor of anthropology, Claremont College, Claremont, Calif.

Committee on the recovery of archaeological remains of the Smithsonian Institution.—W. Duncan Strong.

5. NATIONAL RESEARCH FELLOWSHIPS

The National Research Council has been entrusted by certain of the foundations and industrial organizations with appropriations to provide for a limited number of predoctoral and postdoctoral fellowships for the purpose of promoting training of talented individuals in research in educational and research institutions of the United States. These fellowships are awarded to persons who give high promise of achievement or who have demonstrated a high order of ability in research. The fellowships are planned to enable the holders to obtain additional experience in institutions which make adequate provision for effective prosecution of research. Applicants are eligible for appointment who are citizens of the United States or Canada and whose qualifications fit them for ordinary fellowships of 1 year's duration or senior fellowships of 3 years' duration. The exact conditions of appointment are given below under the headings of "Fellowships in the Natural Sciences," "Fellowships in the Medical Sciences," and "Merck Fellowships."

Natural Sciences

Fellowships in the following subjects, supported by grants from the Rockefeller Foundation, are administered by the National Research Fellowship Board in the Natural Sciences: Physics, astronomy, chemistry, mathematics, geology, paleontology, physical geography, botany, zoology, biochemistry, biophysics, agriculture, forestry, anthropology, and psychology.

When requested to do so, the Board is ready to consider entering into cooperation with universities in the support of participating fellowships by providing a part-time research fellowship in connection with a part-time university instructorship.

MEMBERS OF THE BOARD

Detlev W. Bronk, ex officio, Chairman of the National Research Council; professor of biophysics, director of the Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

R. T. Chamberlin, professor of geology, University of Chicago, Chicago, Ill.

M. H. Jacobs, professor of general physiology, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Frank B. Jewett, ex officio, president, National Academy of Sciences; 140 West Street, New York City.

Duncan A. MacInnes, member, Rockefeller Institute for Medical Research, Sixty-sixth Street and York Avenue, New York City.

John C. Slater, professor of physics and head of the department, Massachusetts Institute of Technology, Cambridge, Mass.

Medical Sciences

Fellowships in the medical sciences, maintained by the Rockefeller Foundation, are available to candidates who in general are under 30 years of age and have fulfilled all requirements for the doctorate degree not later than the close of the calendar year in which the applications are filed or who have had training equivalent to that represented by the doctorate degree.

Fellowships in virology and orthopedic surgery are supported by grants of the National Foundation for Infantile Paralysis, Inc., to the National Research Council. In addition to the ordinary fellowships in this field, there are also available senior fellowships in virology, orthopedic surgery, and pediatrics. The requirements for the senior fellowships are based upon the qualifications of men and women who have already shown definite achievement in research and are awarded for periods of 3 years with possibility of renewal for a second period of 3 years.

Fellowships in anesthesiology have been provided by the American Society of Anesthesiologists, Inc., by grant to the National Research Council, which administers the fellowships under the same qualifications as for the fellowships in the medical sciences, with the purpose of giving a candidate a year or more of experience in the sciences basic to anesthesiology.

The Rockefeller Foundation has also provided the Research Council with funds to support the Welch fellowships in internal medicine. These fellowships are of a senior grade, available to candidates who have shown definite achievement in research and are awarded for a period of 3 years with the possibility of an additional award for three more years.

The Welch fellowships in internal medicine and the fellowships in the medical sciences, including those relating to virus diseases, orthopedic surgery, pediatrics, and anesthesia, are administered by the Medical Fellowship Board.

MEMBERS OF THE BOARD

Robert F. Loeb, chairman, Lambert professor of medicine, College of Physicians and Surgeons, Columbia University, New York City.

G. W. Beadle, professor and chairman of the division of biology, California Institute of Technology, Pasadena, Calif.

Alfred Blalock, professor and director of the department of surgery, School of Medicine, Johns Hopkins University, and surgeon in chief, Johns Hopkins Hospital, Baltimore, Md.

Paul R. Cannon, professor and chairman of the department of pathology, University of Chicago, Chicago, Ill.

W. U. Gardner, chairman of the department of anatomy, School of Medicine, Yale University, New Haven, Conn.

A. Baird Hastings, Hamilton Kuhn professor and head of the department of biological chemistry, Harvard Medical School, Boston, Mass.

T. Grier Miller, professor of clinical medicine, School of Medicine, University of Pennsylvania, Philadelphia, Pa.

Homer W. Smith, professor of physiology, College of Medicine, New York University, New York City.

A. Ashley Weech, professor of pediatrics, College of Medicine, University of Cincinnati, Cincinnati, Ohio.

John B. Youmans, medical director of research and educational hospitals, professor of medicine and dean of the College of Medicine, University of Illinois, Chicago, Ill.

Lewis H. Weed, ex officio, chairman, Division of Medical Sciences, National Research Council; professor of anatomy, Johns Hopkins University, Baltimore, Md.

Merck Fellowships in the Natural Sciences

The Merck fellowships of the National Research Council were established in 1946 by a grant from Merck & Co., Inc. It is the purpose of these fellowships to give special training and experience to young men and women who have demonstrated marked ability in research in the chemical or biological sciences, and who wish to broaden their fields of investigational activity. These fellowships are open only to citizens of the United States, and to candidates who have received the Ph. D. degree or equivalent training in chemistry or biology, and who have demonstrated unusual ability for experimental research.

The Merck fellowships are administered by a Merck fellowship board, consisting of the following members:

A. N. Richards, chairman, professor of pharmacology, and vice president in charge of medical affairs, University of Pennsylvania, Philadelphia, Pa.

George W. Beadle, professor of biology, California Institute of Technology, Pasadena, Calif.

Detlev W. Bronk, ex officio, Chairman, National Research Council.

Hans T. Clarke, professor of biochemistry, College of Physicians and Surgeons, Columbia University, New York, N. Y.

George O. Curme, Jr., vice president and director of research, Carbide & Carbon Chemicals Corp., New York, N. Y.

René J. Dubos, member, Rockefeller Institute for Medical Research, New York, N. Y.

The first group of fellowships awarded under this grant became effective on July 1, 1947.

American Cancer Society Fellowships

In addition to fellowships administered by the Medical Fellowship Board, funds for research fellowships in fields related to problems of cancer have been made available by the American Cancer Society. These fellowships are awarded and administered by the Society on recommendation of the committee on growth of the National Research Council. Fellowships of all grades may be awarded to candidates in any of the many fields of basic science which may contribute to the advancement of knowledge in the field of neoplastic disease.

Predoctoral Fellowships

In addition to the postdoctoral fellowships already described, the Rockefeller Foundation has granted to the National Research Council a sum of $585,000 available for the period ending June 30, 1948, for the maintenance of a series of emergency predoctoral fellowships in the natural sciences. These fellowships are designed to assist students whose training for the doctor's degree has been interrupted by the war to resume academic studies.

The fellowships under this program have been awarded and no new awards will be made. Those holding these fellowships may continue until Ph. D. degrees are obtained providing the committee is satisfied as to the progress of the recipients.

MEMBERS OF THE COMMITTEE ON PREDOCTORAL FELLOWSHIPS

W. A. Noyes, Jr., chairman, professor of chemistry, University of Rochester, Rochester, N. Y.

Henry A. Barton, director, American Institute of Physics, 57 East Fifty-fifth Street, New York City.

Charles W. Bray, professor of psychology, Princeton University, Princeton, N. J.

Detlev W. Bronk, Chairman of the National Research Council and director, Johnson Research Foundation, University of Pennsylvania, Philadelphia, Pa.

L. P. Eisenhart, professor of mathematics, emeritus, Princeton University; 25 Alexander Street, Princeton, N. J.